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TRUST, OPENNESS, AND ORGANIZATIONAL DEVELOPMENT: SHORT-TERM RELATIONSHIPS IN RESEARCH AND DEVELOPMENT LABORATORIES AND A DESIGN FOR INVESTIGATING LONG-TERM EFFECTS

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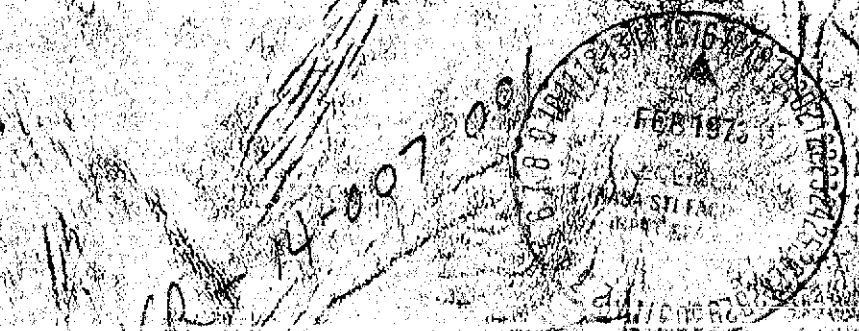

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ABSTRACT

This dissertation reports some results of a multi-goaled study of trust and organizational behavior. These goals included an integration and synthesis of the literature dealing with trust and openness in organizations, a contribution toward a system of human resources accounting, the test of explicit a priori hypotheses in a field setting, a general exploration of organizational and individual correlates of trust, and improved understanding of the theory and practice of organizational development (OD).

A theory of trust and openness in organizational behavior, together with an eclectic sampling of the research literature to support the theory, is presented in four main parts. The first part describes a framework for the analysis of individual and organizational behavior. This framework borrows from role theory, information processing and decision theories, and humanistic psychology. The second part relates significant variables to the problem of trust in organizations. Included are considerations of effectiveness at the individual, group, and organizational levels; trust and openness; perception and reality; communication; decision-making; and creativity and control. The third part of the theory presentation concerns extensions of the basic theory of trust. After defining the evolution of the newly coalescing sub-discipline of organizational development, some strategic issues in OD are considered. As a further extension, some of the environmental and cultural parameters which might alter the basic theory are discussed. Finally, the fourth part presents the formal hypotheses of the study.

A multiple time-series, natural quasi-experimental research design was chosen as an evolutionary framework to study trust and organizational development in research and development laboratories. Nine focal groups, each with five to ten members, from three organizations, participated in the study. One of the companies had an active organizational development program; the second company was using some sensitivity training in its organizational development; the third company had not heard of OD.

Most individuals completed two (in some cases one or three) batteries of questionnaires several months apart. These questionnaires measured demographic items, some personality traits (openness to experience, ego strength, and defensiveness), self-actualization, intergroup dependencies, the evaluation of past decisions, and the group climate--focusing on trust and openness of

communication. Rating of the groups' effectiveness--toward the organization and toward their own subgoals--at several intervals were made by the participants, some peer groups, and several levels of their supervisors.

Methodological studies of many of the scales and of the procedures used in the project were made. Several of the scales were found to be appropriate for various kinds of action research or organizational development programs. In addition, the procedures developed during the project may be useful for some kinds of longitudinal field research studies.

Several hypotheses were tested. Two hypotheses were supported:

> H 1. The more an individual trusts his work group and the more he generally trusts others with whom he interacts during his work, the greater will be his self-actualization.
>
> H 3. A "proper" organizational development program will increase individuals' feelings of trust toward their own work group and toward others while keeping the individuals aware of the demands of their tasks.

Another hypothesis received mixed support; in addition it led to exploratory findings:

> H 2. The more the members of a group trust the group, and the more they generally trust others with whom they interact during their work, the more effective the group will be in its goal accomplishment.

Trust of one's work group did significantly correlate positively with the group's effectiveness toward achieving its goals as rated by the individuals in the group. However, correlations between trust and effectiveness as rated by superiors evidenced a negative pattern. Further investigation of the relationships led to a plausible conclusion: that there was a value conflict in the organizations between "obedient" and "self-reliant" behavior.

Several secondary hypotheses were tested; none showed strong support. In an exploratory analysis of the major variables of the study, several variables proved salient: time to complete the questionnaires, ego strength, openness to experience, age, education, and hierarchical position.

Conclusions and implications from the study center on three areas: research, organizational development, and organizational management and membership. A comprehensive, rigorous, humanistic, and participative research orientation is suggested as appropriate for many organizational situations. Of specific concern are attention to the process of research, the use of multiple methods and multiple traits--including variables at several "levels," some use of previously developed scales, and some focus on organizational and individual effectiveness.

Sufficient research has accumulated to indicate that open, trusting, reality-testing relationships can promote individual and organizational effectiveness and that some planned change programs do promote such trusting climates. The future challenges seem to be finding the entry and leverage points for differing individuals, groups, and intergroup relations and finding means for reinforcing both trust and reality-testing--that is, for reinforcing self-renewal.

Organizational development may be defined as "an educational strategy employing experienced-based behavior in order to achieve a self-renewing organization." Although active in respect to its experiential learning model, traditionally--with some exceptions, OD has taken a passive role with respect to segments of the organization external to the specific group under consideration. It is suggested that for some organizational climates, a more aggressive approach--utilizing power in humanistic ways--may yield a more self-renewing organization more quickly and more enduringly. Increased attention to aspects of personal growth may facilitate organizational members becoming and remaining more fully functioning--for both the organization and themselves, since trust of self may be seen as a prerequisite for trust of "the other."

Two aspects of this study may be of central concern to organizational members. First, it would appear that an organizational climate which fosters trusting and open behavior will promote organizational effectiveness and be individually more satisfying. Second, there are strategies for facilitating the development and maintenance of such an open climate. While organizational development can facilitate the growth of such a climate, it is the organization's members who must accept an active responsibility for their work environment. An OD agent can help members increase their problem-solving, collaborative, and group process skills; their awareness of themselves and others; their creative risk-taking; and their sense of responsible autonomy and interdependence. However, for effective transfer of learning to occur--for the organizational climate to become open and trusting--the organization's members must maintain a spirit of inquiry, an individual authenticity, and the ability to act and decide responsibly.

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Throughout my education at Northwestern and throughout this research project, I have greatly benefited from the guidance, questioning, and suggestions of Professor Albert H. Rubenstein.

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Words I

In every cry of every Man,
In every Infant's cry of fear,
In every voice, in every ban,
The mind-forg'd manacles I hear.

--William Blake, "London," Songs of Experience.

Il est trés simple: on ne voit bien
qu'avec le coeur.

--Antoine de Saint-Exupéry, Le Petit Prince.

Trust, Effectiveness, and Organizational Development: A Field Study in Research and Development Laboratories*

by
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1.01 Introduction

American industry has a tradition of trying to improve itself by various means, including research on its own problems and potential solutions. Frederick Taylor, the father of "Scientific Management" (Merrill, 1960), was primarily concerned with efficiency: the readily measured efficiency of direct labor and material costs. George Mayo, in his Hawthorne studies of human relations in industry, extended the range of inquiry to include a broadened concept of man. Man was conceived, not as a somewhat unreliable machine, but as a human, an individual. Today, organizational development (OD) is concerned with increasing the effectiveness of individuals, groups, and organizations. Organizational development is concerned not solely with the individual, nor solely with the organization, but with the symbiotic and synergistic relationship between them.

1.02 Effectiveness, trust, and organizational development

This research project addressed two general questions from the viewpoint of organizational behavior and humanistic psychology: a) what contributes to "effective" behavior in organizations, and b) how can such effective behavior be facilitated. Measuring organizational effectiveness has been a difficult problem for the general organizational theorist; the problem is much more severe for the theorist examining research and development laboratories. Economic results are only the indirect products of an R&D lab; the direct product is information. An underlying thesis of this study, then, is that attention to information creation and exchange--to communication--can relate directly to effectiveness.

Appropriate trust and openness are believed to improve creativity and communication, especially in highly dynamic environments. Trust may be conceived as a preconscious condition permitting one to enter a situation with minimal defensiveness. Its behavioral manifestation involves opening oneself up to

*This paper summarizes some of the research reported more fully in the author's doctoral dissertation (Kegan, 1971). The author wishes to express his gratitude to Professor Albert H. Rubenstein for his guidance and suggestions given throughout this research project; to the participants in the study; and to the National Aeronautics and Space Administration for their support of the research of which this paper is a part (NASA Grant No. NSG 495).

CHAPTER ONE: Introduction and Dissertation Summary

1.01 Introduction

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Appropriate trust and openness are believed to improve creativity and communication, especially in highly dynamic environments. Trust may be conceived as a preconscious condition permitting one to enter a situation with minimal defensiveness. Its behavioral manifestation involves opening oneself up to

a situation, exposing oneself to the remaining unpredictability of the situation. Two aspects of trust and two aspects of openness may be differentiated. There is trust of oneself and there is trust of "the other." Also, openness may be with respect to receiving information or with respect to giving information. Trust of self facilitates an individual's reality-testing, adaptation, and learning. In addition, appropriate trust of one's co-workers and openness with them facilitates their adaptation, learning, and improved effectiveness.

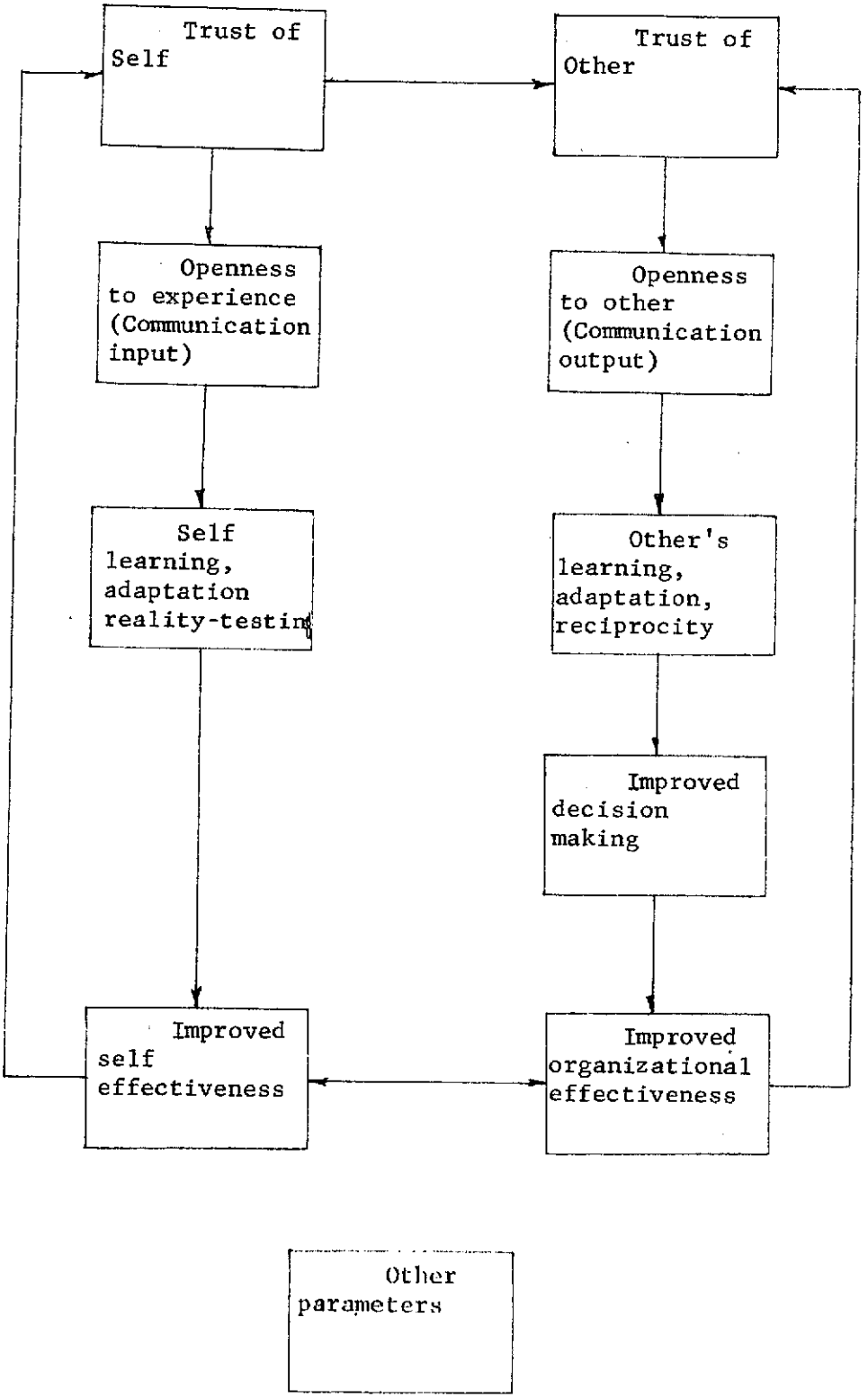
It is improved information exchange that connects trust with effectiveness (see Figure 1). A simplified sketch of this chain of relationships may be made. Trust of self permits openness to, and awareness of, the organizational environment--its goals, resources, and constraints. That is, nondefensive perception allows the individual to obtain a more valid conception of "reality"; and a more valid "reality" permits an individual to function more fully and more effectively. Nondefensive communications help one's co-workers receive more accurate information, which in turn can lead to a more valid "reality" and to more effective functioning on their part.

Nondefensive and open communication and behavior also facilitate collaborative rather than competitive behaviors on the part of others. This is especially significant for sequential decision processes, such as are typical of many management and research programs. Competitive strategies have a tendency to result in suboptimal solutions, while collaborative strategies may evoke synergistic solutions.

Such collaborative strategies may include participative decision-making--a mode of organizational operations in which decisions are arrived at by the p ersons who are affected, or feel they are affected, by them. However, participative decision-making violates some traditional bureaucratic norms, especially those concerned with organizational control. Under various collaborative strategies, organizational control is not abandoned, but is made more specific. Of the three aspects of control--objectives, processes, and feedback--retention of some control aspects by the organizational hierarchy and distribution of some to the organizational membership may facilitate creative and effective organizational functioning.

In summary, trust, nondefensive perceptions, open communication, and appropriate collaboration and control can contribute to effective behavior in organizations. However, there are individual and organizational barriers to trust, openness, and collaboration--and therefore to improved effectiveness. One possible cause of such barriers is poor learning.

Figure 1. Some Relationships of Trust, Openness, Adaptation, and Effectiveness.



As many organization theorists have noted (e.g., Argyris, 1969; McGregor, 1960), one's assumptions about the nature of man and the world influence how he perceives, feels, thinks, and acts. Many individuals in contemporary America have learned that it is dangerous to be open with others. Moreover, they have learned to mistrust themselves--to mistrust their perceptions, their feelings, and their competences. Such mistrust and defensiveness tend toward a closed, non-adapting system. Such systems are liable to impair effectiveness, especially at a time when our environment is changing at an increasingly rapid rate and when both our society and our organizations are becoming increasingly complex and increasingly interrelated. However, it is unlikely that such a closed organizational climate will change without some external stimulation (cf. Greiner, 1967).

Organizational development (OD) is one form of "external" stimulation. OD is an educational strategy employing experienced-based behavior in order to achieve a self-renewing organization. OD generally stresses the value--for both the individual and for his work effectiveness in the organization--of confrontation, choice, and collaboration. These behaviors require some trust of self and of one's co-workers. OD seeks to facilitate the development of trust and openness, so that the organizational members may remove barriers which prevent the release of human potential within the organization.

This concern for human potential is one of several aspects of organizational development which have evolved from humanistic psychology. Humanistic psychology has extended the image of man, and sees him as an organic, whole person, who exists (cf. Maslow, 1962; Perls, 1960; Rogers, 1961). Life is often seen as a process of discovery: discovery of the self in experience and of the outer world through experience.

Although discussing theater, Spolin's (1963: 3) comments on experience and learning are consistent with this humanistic spirit:

> We learn through experience and experiencing, and no one teaches anyone anything. This is as true for the infant moving from kicking to crawling to walking as it is for the scientist with his equations.
>
> If the environment permits it, anyone can learn whatever he chooses to learn; and if the individual permits it, the environment will teach him everything it has to teach.

A major dependent variable of humanistic psychology and of organizational development is man's effectiveness: how well he is achieving his potential, how fully functioning he is. According to humanistic psychology, if the individual trusts himself enough to be sufficiently open to the experience of

his organism, which in turn reflects experience of the world, he will discover whatever guidance and control is necessary for his healthy growth. Openness to others promotes individual well-being, while hiding one's feelings or trying to "play the part" of another's expectations hinders authentic behavior.

This is a self-centered model of man, but not in a pejorative sense. Man is a social being; his individual organism naturally reflects concerns of the species, of "the other." It would only be by keeping closed to part of his experience that man could be, in the pejorative sense, selfish.

1.03 Method

The development of a methodology for the rigorous testing of specific propositions concerning trust, organizational development, and organizational behavior was a major concern of this study. A rather complicated research design evolved which attempted to reduce many plausible methodological rival hypotheses present in early studies of the effects of sensitivity training and organizational development. This concern for rigor led to several features of the research design--a design calling for longitudinal research of a natural quasi-experiment in a field setting.

There have been many studies of trust in laboratory situations. However, such a situation cannot readily reproduce the extended commitment, importance of outcomes, intergroup relations, and complexity of the natural environment which naturally occur in operating organizations. Thus, to have increased confidence that the results of this project would validly represent actual "real-world" conditions, a field study design was chosen.

Another threat to validity concerned the selection of participating organizations and the possible interaction between the "experimental stimulus"--the organizational development program--and the measurement procedures. If only organizations committed to a program of organizational change were included in the study, the research results might not be applicable to organizations not engaged in such a program. Since it was desired to test propositions representative of organizational behavior in general, it was critical that not all participating organizations be involved in organizational development programs. To avoid another possible confounding factor, the author strictly maintained his relationship to the participating organizations as that of a researcher rather than as a consultant.

Finally, it was desired to obtain data at more than a single point of time. This would further probe the generality of the findings and would provide some evidence for the determination of causality. In addition, such a longitudinal approach was considered as a pilot test of the current feasibility of conducting "administrative experimentation" in research and development laboratories (Campbell, 1967; cf. Likert, 1967).

Thus, a multiple time-series, natural quasi-experimental research design was chosen as an evolutionary framework to study organizational development in research and development laboratories[1] (Campbell & Stanley, 1963). Nine focal groups, each with five to ten members, from three companies participated in the study. The three companies varied in their involvement with organizational development programs. One of the companies had an active OD program, the second company was using some sensitivity training in its OD, and the third company had not heard of OD.

Most individuals completed two (in some cases one or three) batteries of questionnaires several months apart. These questionnaires measured demographic items, some personality traits (openness to experience, ego strength, and defensiveness), self-actualization, intergroup dependencies, the evaluation of past decisions, and the group climate--focusing on trust and openness of communications.[2] Ratings of the group's effectiveness--toward the organization and toward its own subgoals--at several intervals were made by the participants, some peer groups, and several levels of their supervisors.

For several of the scales, specific referenced groups were indicated. These referenced groups included target groups and standard control groups. Target groups were groups previously identified as having significant work-related interaction with a focal group of the study. The control groups--"people-in-general" and "your best friend"--served as "zero points" to promote comparisons across groups, companies, and time.

[1]Research and development departments were chosen because a) such departments are concerned with creativity, information exchange, and decision-making, and thus an atmosphere of trust and openness was expected to have significant effects; and b) the Program of Research on the Management of Research and Development, Northwestern University, has been engaged in a continuing research program on R&D organizations (POMRAD, 1970).

[2]The study was designed so that it could be extended into a longer-term study; thus self-administered questionnaires were chosen as research instruments. In addition to scales developed by the author, scales for the various variables were obtained from: Fitzgerlad, 1966a, 1966b (openness to experience); the MMPI (ego strength--Es, defensiveness--K); Bonjean & Vance, 1968 (self-actualization); Jourard & Lasalow, 1958 (self-disclosure); and a modified form of Rosenberg's 1956 faith-in-people scale (trust).

1.04 Hypotheses and results

Several hypotheses were tested in this study. The three main hypotheses concerned trust and individual effectiveness, organizational effectiveness, and organizational development programs. The first hypothesis was supported.

> H 1. The more an individual trusts his work group and the more he generally trusts others with whom he interacts during his work, the greater will be his self-actualization.

Using data from the first questionnaire administration, a significant relationship ($p<0.05$) was found between trust of the focal work group and self-actualization (Spearman's rho = 0.300, n = 72), and between the average trust of target groups and self-actualization (rho = 0.287, n = 72). When an overall trust index is created by adding together focal and average target group trust, the correlations between trust (as measured by the overall index) and self-actualization is even stronger (rho = 0.353, n = 72, $p<0.01$).

To investigate the generality of support, separate tests were made of these relationships for each company's sample. While trust of the focal group was related to self-actualization at Companies P and G, it appeared that trust of target groups was the more relevant variable at Company V. It is possible that the selection of target groups at Company V included more "critical" relationships than at the other companies.

The two components of the second hypothesis received mixed support.

> H 2b. The higher the group trust of itself, the greater the group's effectiveness toward achieving its own goals.
>
> H 2c. The higher the group trust of others with whom they interact, the greater the group's effectiveness toward the organization's goals.

The correlations between the effectiveness ratings and the other variables of the study present a mixed picture of significant positive and negative correlations.[3]

[3]Mean ratings of focal group effectiveness by bosses (B), the focal group (F), and peer groups (P) and mean ratings of self effectiveness (S) of individuals in the focal groups were assigned to each individual in the focal group. Thus, each individual would have twelve effectiveness scores per time period--six for contribution toward organizational goals and six toward the group goals. Two of these six scores would be the individual's own rating of his self effectiveness (I) and of the effectiveness of the focal group (G). The other four scores would be identical for all members of the focal group. For example, the mean of all the bosses' ratings of the focal group would be assigned to each member of the focal group as his effectiveness rating by his superiors. This procedure of assigning identical scores for four of the six ratings to all members of the focal group may be expected to create some statistical artifacts, especially inflated correlations. However, since no individual effectiveness data was made available by the companies, such an assignment procedure was considered as the best means of utilizing the information that was available--individual scores on the "questionnaire" variables and group scores on effectiveness ratings.

An initial simplification may be made--focusing on the bosses' ratings of organizational effectiveness and the focal group's ratings of group effectiveness. Under these conditions, hypothesis H 2b is supported considering individual ratings of focal group effectiveness (rho = 0.387, n = 47, $p<0.01$), but not by the averaged focal group ratings. Bosses' ratings of organizational and of group effectiveness generally show significant negative correlations with the questionnaire variables. This would tend to withhold support from hypothesis H 2c. However, the large number of "conflicting" correlations (significant correlations of opposite signs for various groups of raters) prompts consideration of plausible rival hypotheses.

One rival hypothesis would be that the "questionnaire" variables are unreliable. However, methodological and experiential tests of the questionnaire scales render this unlikely. A second rival hypothesis grows from a consideration of a cluster of variables which tend to be negatively correlated with the effectiveness ratings: focal group trust, target group trust, self-actualization, and ego-strength. This second interpretation would be that some raters tend to rate as less effective those groups which evidence greater independence and confrontation. An overall consideration of the data on the effectiveness ratings led the author to support this second interpretation.

Thus, the data available is not considered to be a valid test of H 2. However, an important issue is raised. If this second interpretation is correct and if these results may be generalized to other, similar organizations, then rather severe problems with evaluation and utilization of human potential may exist. This second interpretation would tend to imply that many line evaluators penalize aggressive, confronting, coping individuals in spite of the possible organizational benefits of such behavior.

The third hypothesis concerned the evaluation of organizational development programs. It was supported.

> H 3. A "proper" organizational development program will increase individuals' feelings of trust toward their own work group and toward others while keeping the individuals aware of the demands of their tasks.[4]

It was recognized that a long time period may be necessary for such global results; therefore, shorter-term effects were considered as more likely to be observed during the study. Expected short-term results were the increasing

[4] A "proper" organizational development program may be seen as one which competent applied behavioral scientists believe to have met previously established preconditions for success (cf. Schein & Bennis, 1965: 216).

of trust of one's own group, and with a longer time interval, of trust toward some other interacting groups.

Time-series data was available only for five groups: P01, P02, P03, V01, and V03. P01 and P02 had three sets of data; P03, V01, and V03 had two sets of data. The temporal changes in self-actualization, in focal group trust, and in target group trust were investigated using the Walsh test (Siegel, 1956: 83ff).[5] This test operates on difference scores. If there were no "real" difference between the two samples being measured (time periods in this case), one could expect positive difference scores about as often as negative scores. Table 1 presents the overall results of changes in trust and self-actualization for the five groups. Both statistically significant relationships and nonsignificant trends are indicated.

Table 1. Walsh Test for Temporal Changes

	Self-Actualization			Focal Trust			Average Target Trust		
QAI	2-1	3-2	3-1	2-1	3-2	3-1	2-1	3-2	3-1
P01	+		(+)	+	(+)	+	(+)		
P02		-	(+)	+	(+)	+	(+)	(-)	(+)
P03	(-)						(-)		
V01	-			(-)			(-)		
V03				(-)			-		

QAI is the Questionnaire Administration Interval. For example, 2-1 indicates the change between the first and second questionnaire administrations.
+ or - indicates a relationship significant at $p < 0.06$, one-tailed.
( ) indicates a nonsignificant trend.

[5]These data were also investigated using the Wilcoxon matched pairs signed ranks test. The Wilcoxon test may be used with ordinal data, but the Walsh test requires at least interval data (Siegel, 1956: 68-87; see Winch & Campbell, 1969, on the "flexible" use of tests of significance for interpreting research data). The Wilcoxon test is rather severe on small samples; it cannot be used for $n < 6$. Eight samples had at least six non-zero difference scores. However, none of these eight samples evidenced a relationship sufficient to reach statistical significance on the Wilcoxon test. The Walsh test may be used with sample sizes as few as 4. The small sample sizes prevent some "strong-looking" relationships from reaching statistical significance, even with the Walsh test.

Using the Walsh test, self-actualization scores significantly ($p < 0.06$, one-tailed) increased for P01 between its first and second questionnaire administrations; self-actualization significantly decreased for P02 between its second and third administrations, and significantly decreased for V01 between its two administrations. Self-actualization tended (nonsignificantly) to increase for P01 between its first and third administrations, and to decrease for P03 between its two administrations.

Between the first and second administrations and between the first and third administrations, focal group trust significantly increased for both P01 and P02. It showed nonsignificant increases between the second and third administrations. Focal group trust for both V01 and V03 evidenced a tendency (nonsignificant) to decrease between its questionnaire administrations.

Average target group trust significantly decreased for V03. It tended (nonsignificantly) to decrease for V01, for P03, and for P02 between its second and third questionnaire administrations. Average target group trust tended to increase (nonsignificantly) between the first and second administrations for both P01 and P02; it tended to increase between the first and third administrations for P02.

During the period of this research, only two groups--P01 and P02--were involved in organizational development programs. P01 was more involved than P02. P03 had investigated beginning an OD program, but had made no commitment. Company V had had some sensitivity training programs, but no organizational development work had been begun with any of the groups. As Table 1 indicates, the only two groups with OD programs were also the only groups to show an increase in trust. Two of the other groups evidenced decreases. The decrease may have been due to the national economic situation, internal personnel changes, differing overall organizational factors, or other causes. For whatever reasons the V groups decreased, such a comparison makes the increase for P01 and P02 more noteworthy.

Self-actualization scores showed a similar pattern. However, for P02 between the second and third questionnaire administrations, self-actualization showed a significant decrease. It was during this period that an appointment of a manager was made which violated the participative expectations of the group. In spite of this setback, over the entire period of the study P02 tended to show an increase in self-actualization. Changes in average target group trust are less strong, but parallel those of self-actualization.

In summary, two of the main hypotheses generally were supported. Trust of the focal group and of target groups tended to be associated with self-actualization (H 1). In addition, a "proper" organizational development program was able to increase focal group trust and self-actualization (H 3). It is likely that a "proper" organizational development program focused on intergroup relations could also increase trust of target groups.

Analysis of the data for the second hypothesis (H 2) raised several questions. While clear data were not available to discount all plausible rival hypotheses, the author believes that the effectiveness ratings obtained in this study were more descriptive of raters' insecurity toward confronting, adaptive individuals than they were of the contribution those individuals made to the goals of their group and of the organization. Further study of this issue could be quite productive.

In addition to the three main hypotheses, several secondary hypotheses were tested; none showed strong support. In an exploratory analysis of the major variables of the study, several variables proved salient: time to complete the questionnaires, ego strength, openness to experience, age, education, and hierarchical position.

1.05 Discussion and conclusions

Conclusions from this study center on three areas: research on organizational behavior, organizational development, and organizational management and membership. It is suggested that future research on organizational trust concentrate on the parametric variations in propositions, rather than solely on the variables of trust and effectiveness. That is, under what parametric conditions does the relationship between trust and effectiveness hold and how is the trust-effectiveness relationship influenced by other variables. Sufficient research has been accumulated to indicate that open, trusting, reality-testing relationships can promote individual and organizational effectiveness and that some planned change programs do promote such trusting climates.[6] The future challenges seem to be finding the entry and leverage points for differing individuals, groups, and intergroup relations and finding means for reinforcing self-renewal.

Organizational development is active with respect to its experiential learning model. However, with some exceptions, OD has traditionally taken a passive role with respect to segments of the organization external to the specific group under consideration. It is suggested that for some organizational climates, a more aggressive approach--utilizing power in humanistic ways--may yield a more self-renewing organization more quickly and more enduringly. Increased attention to aspects of personal growth may facilitate organizational members becoming and remaining more fully functioning--for both the organization and

[6]There is now a substantial research literature on the individual and organizational effects of various kinds of T-groups and other experienced-based learning designs. Comprehensive reviews include Argyris, 1968 a; Buchanan, 1965, 1969; Campbell & Dunnette, 1968; Dunnette & Campbell, 1968; Durham, Gibb, & Knowles, 1967; Gibb, 1970; Gottschalk & Pattison, 1969; House, 1967, 1968; Lieberman, 1970; Schein & Bennis, 1965; Stock, 1964; and Yalom, 1970. Rogers, 1970, gives a responsible personal statement on the encounter group movement; French, 1969, offers a concise review of OD; and Steele, 1970, presents a beautiful comment on OD research. Reports of specific programs appear frequently in the Journal of Applied Behavioral Science, occasional publications of the NTL Institute, and the Training and Development Journal.

There has also developed a large, popular literature on T-groups. Some of the popular and trade journal articles seem to emphasize the controversial nature of T-groups and to show a surprising ignorance of the published research, other popular articles give a more "professional" report. Responsible critiques of sensitivity training techniques include William H. Blanchard, "Ecstasy without agony is baloney," Psychology Today, 3, 8, January 1970; Marvin D. Dunnette, "Should your people take sensitivity training," Innovation, number 14, 42-55, September 1970; Martin Lankin, "Some ethical issues in sensitivity training," American Psychologist, 24, 10, 923-928, October 1969; NTL Institute, Standards for the use of laboratory method, n.d.; and Everett L. Shostrom, "Group therapy: Let the buyer beward," Psychology Today, 2, 12, May 1969.

themselves, since trust of self may be seen as a prerequisite for trust of "the other."

Two aspects of this study may be of concern to organizational members. First, it would appear that an organizational climate which fosters trusting and open behavior will promote organizational effectiveness and be individually more satisfying. Second, there are strategies for facilitating the development and maintenance of such an open climate. While organizational development can facilitate the growth of such a climate, it is the organization's members who must accept an active responsibility for their work environment. An OD agent can help members increase their problem-solving, collaborative, and group process skills; their awareness of themselves and others; their creative risk-taking; and their sense of responsible autonomy and interdependence. However, for effective transfer of learning to occur--for the organizational climate to become open and trusting--the organization's members must maintain a spirit of inquiry, an individual authenticity, and the ability to act and decide responsibly.

A final issue concerns the "optimism" latent throughout this study. Two assumptions underlying the project were a) that individual and organizational relations are capable of change and b) that some changes are more feasible than others. Much of this study focused on why change is possible and on how trust and openness may be effective. This was due, in part, to the author's assumption that many organizational members focused on the inertial massiveness of constraints to change. For effective individual and organizational action, the trusting individual should be open to testing his assumptions and to recognizing both potentials and constraints.

CHAPTER TWO: Theory

2.01 Chapter overview

This chapter presents a theory of trust and openness in organizational behavior, together with an eclectic sampling of the research literature to support the theory.

In general, the literature is not discussed exhaustively. The literatures of several disciplines (including experimental, social, and humanistic psychologies, organization theory, sociology, political science, anthropology, and engineering) are brought to bear on the problem of trust in organizations; but a complete review of all literatures is beyond the scope of this dissertation. However, a comprehensive review of the relevant research literature is made.

The specific items chosen for citation are those with which the author has come in contact and found relevant. Naturally, this has involved some idiosyncratic elements. Many of the items cited are considered to generally reflect the literature of that area. Those that are more provincial, however, still provide an initial guide and entering wedge into that body of research.

The research on trust and organizational behavior has been exhaustively studied. Related areas, such as psychotherapy, laboratory games, and international relations, are mentioned, but are not extensively considered.

This study addresses two general questions from a humanistic viewpoint: a) what contributes to "effective" behavior in organizations, and b) how can such effective behavior be facilitated. Measuring organizational effectiveness has been a difficult problem for the general organizational theorist; the problem is much more severe for the theorist examining research and development laboratories. Economic results are only the indirect products of an R&D lab; the direct product is information. An underlying thesis of this study, then, is that attention to information creation and exchange--to communication--can relate directly to effectiveness.

Appropriate trust and openness are believed to improve creativity and communication, especially in dynamic environments. Trust may be conceived as a preconscious condition permitting one to enter a situation with minimal defensiveness. Its behavioral manifestation involves opening oneself up to

a situation, exposing oneself to the remaining unpredictibility of the situation. Two aspects of trust and two aspects of openness may be differentiated. There is trust of oneself and there is trust of "the other." Also, openness may be with respect to receiving information or with respect to giving information. Trust of self facilitates an individual's reality-testing, adaptation, and learning. In addition, appropriate trust of one's coworkers and openness with them facilitates their adaptation, learning, and improved effectiveness.

It is improved information exchange that connects trust with effectiveness (see Figure 1). A simplified sketch of this chain of relationships may be made. Trust of self permits openness to and awareness of the organizational environment--its goals, resources, and constraints. That is, nondefensive perception allows the individual to obtain a more valid conception of "reality"; and a more valid "reality" permits an individual to function more fully and more effectively. Nondefensive communications help one's coworkers receive clearer information, which in turn can lead to a more valid "reality" and to more effective functioning on their part.

Nondefensive and open communication and behavior also facilitate collaborative rather than competitive behaviors on the part of others. This is especially significant for sequential decision processes, such as are typical of many management and research programs. Competitive strategies have a tendency to result in suboptimal solutions, while collaborative strategies may evoke synergistic solutions.

Such collaborative strategies may include participative decision-making--a mode of organizational operations in which decisions are arrived at by the persons who are affected, or feel they are affected, by them. However, participative decision-making violates some traditional bureaucratic norms, especially those concerned with organizational control. Under various collaborative strategies, organizational control is not abandoned, but is made more specific. Of the three aspects of control--objectives, processes, and feedback--retention of some control aspects by the organizational hierarchy and distribution of some to the organizational membership may facilitate creative and effective organizational functioning.

In summary, trust, nondefensive perceptions, open communication, and appropriate collaboration and control can contribute to effective behavior in organizations. However, there are individual and organizational barriers to trust, openness, and collaboration--and therefore to improved effectiveness. One possible

cause of such barriers is poor learning. Many individuals in contemporary America have learned that it is dangerous to be open with others. Moreover, they have learned to mistrust themselves--to mistrust their perceptions, their feelings, and their competences. Such mistrust and defensiveness tend toward a closed, non-adapting system. It is unlikely that such an organizational climate will change without some external stimulation.

Organizational development (OD) is one form of "external" stimulation. OD is an educational strategy employing experienced-based behavior in order to achieve a self-renewing organization. OD generally stresses the value--for both the individual and for his work effectiveness in the organization--of confrontation, choice, and collaboration. These behaviors require some trust of self and of one's coworkers. OD seeks to facilitate the development of trust and openness, so that the organizational members may remove barriers which prevent the release of human potential within the organization.

This chapter--especially sections 2.04 through 2.09--covers a broad range of literatures. The above synopsis may aid the reader in relating the various sections of this chapter to its general theme: an integration and snythesis of the literatures dealing with trust, openness, and change in organizations.

The sections of the chapter may be partitioned into four main parts. First, sections 2.02 and 2.03 (together with the theoretical discussion of control in section 2.09) present a framework, focused on change processes, for the analysis of individual and organizational behavior. This framework borrows from role theory, information processing and decision theories, and humanistic psychology. Second, sections 2.04 through 2.09 relate significant variables to the problem of trust in organizations. Included are considerations of effectiveness at the individual, group, and organizational levels; trust and openness; perception and reality; communication; decision-making; and creativity and control. The third part of the chapter concerns extensions of the basic theory of trust. The evolution of the newly coalescing sub-discipline of organizational development (OD) and some strategic issues in OD are considered in section 2.10. As a further extension, section 2.11 discusses some of the environmental and cultural parameters which might affect the basic theory. In the fourth part of the chapter, section 2.12, the formal operational hypotheses of this research study, together with several secondary and tertiary hypotheses are presented.

2.02 A Model of Man

A conception of man. In the present existential world, there are a few absolutes. Anthropology and utopian literature inform us that there are many ways of organizing society, yet at least three conditions must hold in any human culture. These are a) the birth from a woman of man as a baby, b) the ultimate death of each man, and c) man's dislike of pain and like of pleasure.[1] With these three elements and utilizing psychological learning theory and the theory of the simulation of cognitive processes, a rudimentary model of man may be constructed.

Man may be conceived as a probabilistic, information processing, open system, where some of the information (or reduction of uncertainity or of possibilities) is programmed before birth and some is programmed during life. A key element in this model is man's desire for survival.[2] Given that man is alive, he wished to continue being alive. Man's dislike of pain and his like of pleasure provide principal additional driving mechanisms for his learning. Man's knowledge of his mortality and his ignorance of the time and manner of his death provide him with both a central certainity and an uncertainity. Through his conception, man acquires the genetic programming that will influence part of his life-learning experience. Through his experiences with those who care for him as a baby and child, man learns additional basic programs (cf. Erickson, 1963).

As a result of these genetic and early developmental experiences, programs are created that may be viewed as needs (cf. Etzioni, 1968). These

[1] It is conceivable that at some future time man may be able to grow men from testtubes and may be able to prevent death. However, these developments are not likely to occur for a considerable time, if at all. If the nature of birth and death were thus changed, however, the entire nature of man would be considerably altered. This section concerns man as he is and as he has been known for the past several millennium. It is recognized that each of these three conditions, especially the third, could be made more rigorous. However, some point of departure must be assumed as "good enough."

[2] Since this desire can be empirically demonstrated, its origin is not here at issue. However, two influences may be hypothesized: a) instinct and b) learned anticipation of future rewards or pleasures. Kelley (1958: 49) notes that any person is motivated, motivated if for no other reason than that he is alive.

needs may be described as physical, belongingness, self-esteem, and self-actualization.[3] "The universally observable means by which individuals in all societies reach for the satisfaction of these needs are identity and role. Identity answers the question, 'Who am I?' and role answers the question, 'What am I doing?'" (Hsu, 1963: 160). Complete answers to both of these questions involve both throught and feeling.

Most information-processing models of man have been principally concerned with only an aspect of the means of satisfying these needs. Their principal concern is with the doing; with thinking and problem-solving.[4] This limitation may have been due to the developmental association with students of artificial intelligence,[5] it may reflect characteristic American concern with means rather than ends, or it may be due to other causes. For whatever reasons, it has resulted in incomplete and imbalanced models of man.

An accurate model of man needs to include not only his cognitive abilities, but his affective activities as well. However, this does not require a complete restructuring of older cognitive theories of man, for affective elements can be incorporated into information-processing models (Simon, 1967). Insofar as man is guided by identity and role in the cognitive and affective satisfaction of his needs, a consideration of these factors is necessary to understand man. Of course, neither identity nor role is fixed, but reciprocally evolve as the individual tries to satisfy his needs, i.e., as the individual lives.

Thus, a complete conception of man needs to recognize man's multiple needs, his affective as well as his cognitive activities, his means of satisfying these needs (including answering both who he is and what he does--identity and role), and the cumulative process of growth and development, both for the individual and for his culture.

[3]The nature versus nurture issue need not be decided here. The point is that all men (with the possible exception of "wolf children") do have both these experiences and these needs. Davies (1963: 9) does not consider Maslow's (1943) safety need as a basic need, but as a means of achieving other basic needs.

[4]Gullahorn and Gullahorn's (1963) HOMUNCULUS does include two emotions, anger and guilt, in its simulation of human interaction--a simulation based on Homan's model.

[5]"The attempt to discover an efficient way for the computer to do the task should be called a problem in 'artificial intelligence,' whereas the attempt to imitate the human being should be called a problem in 'simulation'" (Miller, Galanter, & Pribram, 1960: 54).

Contemporary role theory. The concept of "role" has been seen as extremely promising for a synthesis of psychological and sociological theories. However, although rich in empirical referents, role theory lacks much of the interrelational calculus and rules of correspondence linking theory to the data that a true scientific theory has (Deutsch & Krauss, 1965: 6, 173). Sociologists have been able to use role theory in their descriptive studies, but the psychologist has found he cannot readily use contemporary role theory to predict behavior.

A principle reason for this inability to predict behavior is that role theory focuses too narrowly on behavior itself. A role is often defined as the behavioral expectancies usually associated with given positions and evoked by the appropriate symbols, where positions are aggregations of functions standardized within a social system and "cued" by some set of conventionalized symbols (Hollander & Hunt, 1963: 256). Current usage differentiates three aspects of the concept role (Deutsch & Krauss, 1965: 175). The system of expectations which exist in the social world surrounding the occupant of a position--expectations regarding his behavior toward occupants of some other position--may be termed the prescribed role. The specific expectations the occupant of a position perceives as applicable to his own behavior when he interacts with the occupants of some other position may be termed the subjective role. Finally, the specific overt behaviors of the occupant of a position when he interacts with the occupants of some other position may be termed the enacted role. The author believes that it is this focus on behavior that has hindered the development of role theory.

This difficulty is evident in Merton's theories of reference groups and of anomie (Deutsch & Krauss, 1965: 190-203). For example, in his discussion of anomie, Merton (1938) describes five possible modes of adjustment by individuals to their society. However, the prediction of which mode will be chosen by any particular individual cannot be made using Merton's article alone. He merely states that the mode of adjustment chosen "will be determined by the particular personality, and thus, the particular cultural background" (ibid., 678).

Role conflict is another aspect of descriptive theory lacking predictive elements. Often the description of the presence of role conflict in a given social situation is the endpoint of a social analysis. Even when possible methods of resolving such conflict are discussed (e.g. Katz & Kahn, 1966), predictive models of when which method will be chosen are rare in the traditional role theory literature.

The problem is that traditional social role theory often has approached society as static, and thus has approached roles as static and fixed. (A notable exception is Becker's Outsiders, 1963, with its dynamic concept of career.) Such traditional role theory has focused on specific institutions (e.g., business organizations, the family, educational systems), and thus often loses sight of the integration of society within the individual. These neglects parallel the neglects of cognitive simulation: neglect of the cumulative process of growth and development, of the function of emotions, and of the multiplicity of human needs served at any single time.

The place of the emotions in social role theory may not be readily apparent. In its broadest psychological meaning, the term "emotion" refers to a stirred-up state of the organism, reflected in a) emotional experience, b) emotional behavior, and c) physiological changes in the body (Krech & Crutchfield, 1958: 230; see note 11 of this section on the terms "affect" and "emotion"). Illustrating the necessity to distinguish between emotional behavior (including both gross overt behavior and the detailed physiological changes) and emotional experience, Goldstein (1968: 24) approaches emotions as intervening variables. In his discussion of an information-processing model, Simon (1967: 36) describes an interruption mechanism in man's control program that has the properties usually ascribed to emotion. It is this interruption mechanism that allows man to pay attention to his multiplicity of needs and permits him to alter his goals and activities.

A weakness of contemporary role theory has been described as too narrow a focus on overt behavior. Social role theory describes the interplay of roles in society, but plays scant attention to the interplay of roles within the individual.[6] Animal psychologists have studied dynamic phenomena such as learning, but too often, in generalizing their results, readers forget the limitation that the rat was placed in the given maze. Child development psychologists have studied why and how the child learns what he learns, but the interest of some scholars often ends with the end of childhood. The ego-psychologists, such as Erickson, have extended the developmental theory of man, but their theory usually lacks the specific detailed data (such as that used by other psychologists and by sociologists) that permit prediction. Role theory can

[6]This critique of the various theories and disciplines is, of course, quite generalized and perhaps somewhat overbroad. However, the central thrust of the disciplines and theories is the point of issue, not the entire range of activities put under each field's umbrella.

become a central link between social and individual theories. However, to do this, roles must be conceived in their complete context, not abstracted and isolated from reality.

A reformulation of role theory. Reality is the complex interaction of a universe full of various elements. Unto this complexity man imposes order.[7] This imposition is primarily an epistemological one (Maruyama, 1965), reflected both in perception (e.g. Campbell, 1958; Kohler, 1947) and in linguistics (e.g. the Whorfian hypothesis, Whorf, 1956). Most individuals in contemporary Western culture live in a classificational universe inherited from Aristotle (Maruyama, 1965). This hierarchical universe consists of substances organized into mutually exclusive categories, subcategories, and supercategories.[8]

The classificational universe of Western Man is well described by an enumeration of states. In turn, possible behaviors of man can also be described by an enumeration of alternative states. An objective of descriptive (as constrasted with normative) decision theory is to describe the behavior of man by describing the alternatives he will choose. Role theory describes the behavioral expectancies of individuals. Role and decision theories may be explicitly related by rephrasing role theory as the description of the behavioral alternatives that the individual selects to engage in.[9] By considering the selection mechanism as well as the alternatives, role theory may overcome its inability to predict individual behavior outside of restricted social settings, i.e., to predict when, which role will be chosen.

Important elements in the decision-making process are a) the objective state of the universe and its component parts, b) the individual's preconscious[10] perceptions of the universe (which for most Western individuals results in state-descriptions or alternatives), and d) the individual's selection mechanism.

[7]The theological aspects of order will not be discussed here. Cf. Hora (1962: 31), "man does not produce truth, he manifests it and is defined by it."

[8]The relational universe is not hierarchical and is event-oriented. Instead of the classificational preoccupation with causality, in the relational universe the mutuality of interactions predominate. This relational universe was characteristic of pre-communist China (cf. Needham, 1954, 1956).

[9]In this essay, the term "choice" is used to imply conscious selection, while "selection" implies an elimination of alternatives by any means, conscious, unconscious, or purely physical. For example, a stone rolling downhill "selects" the path it will take, but an individual may "choose" which way he will walk to work.

[10]Kubie (1965: 118f) describes the preconscious as "a continuous and remarkably rapid stream of afferent, integrative, creative, and efferent activity, mediated by coded cues and signals, but without fully developed symbolic representation." Besides the effects of real-time stimuli from external

While a predictive role theory may be constructed using the decision or behavioral role as the unit of analysis, a more integrated theory results from considering the decision-premise as the unit of analysis (Simon, 1957: xxx). Thus, Simon defines a role as "a specification of some, but not all, of the premises that enter into an individual's decisions." A decision premise, then, may be considered as a conditional instruction in a program. That is, if various other premises are held (if the situation is appropriately cued), then the individual will put a certain operating program in control (will enact a certain role).

A reconsideration of role theory to include decision premises, behavioral alternatives, and a selection mechanism, as well as multiple needs, development, and cognition amd emotion may now be made (see Figure 2). Beginning with an individual interacting with his social environment, as long as he perceives his environment and himself as behaving lawfully according to the program then in control of the individual, he will continue interacting according to that role.

However, this control program may be interrupted in several ways. The environment may change. Other people may have altered their behavior, so that it is no longer compatable with the individual's expectations. Or the spacial-temporal location of the interaction may have changed from that which the individual's control program deems appropriate. Alternatively, the operating program may have achieved its goal, in terms of aspiration level, satisficing, impatience, or discouragement (Simon, 1967: 32), or the ranking of the individual's multiple needs may have changed. Finally, the individual

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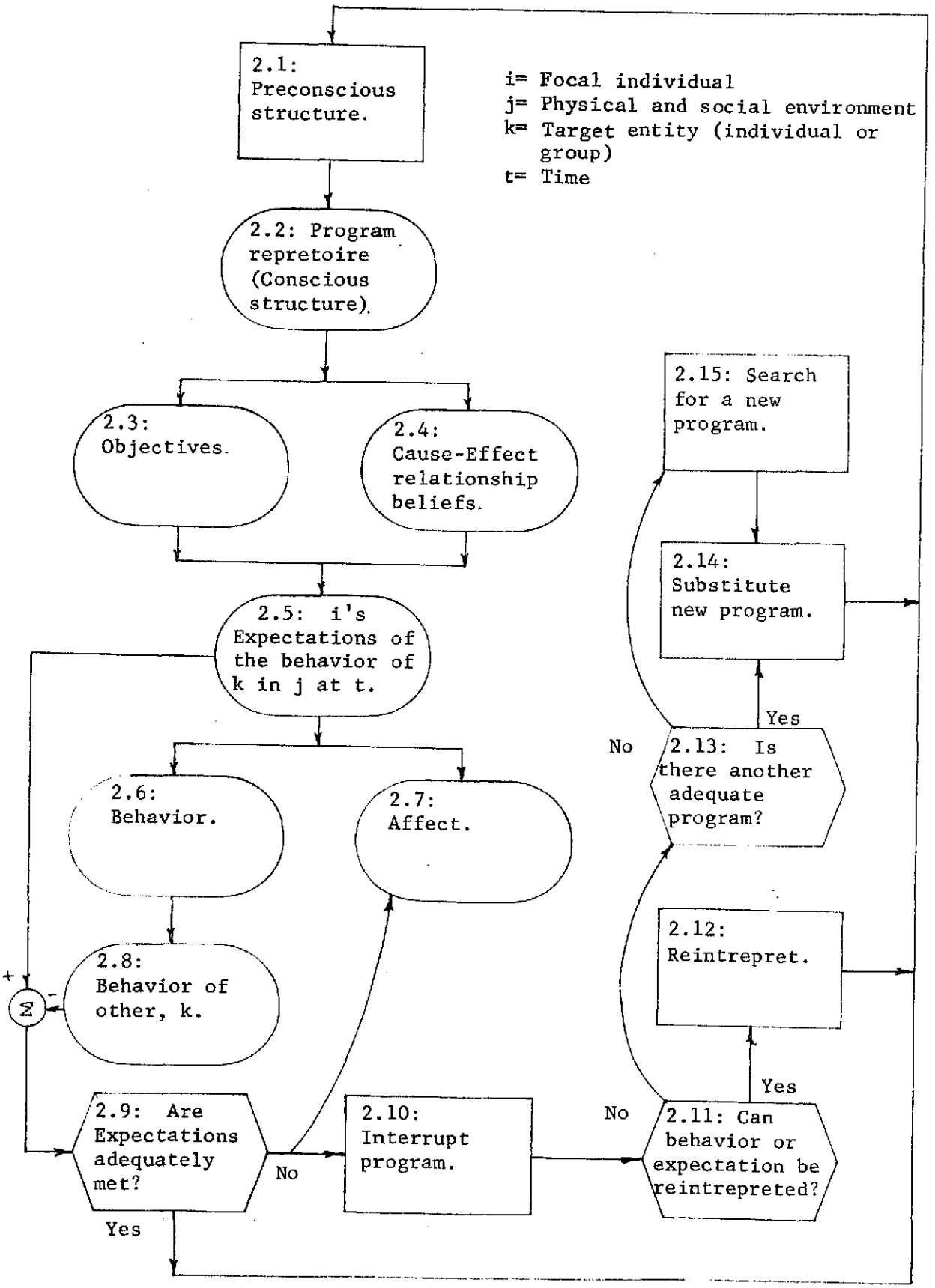
stimuli-objects, the preconscious also consists of active residual imprints from prior experiences.

"Conscious symbolic processes sample all of this activity: that is, the incoming signals, the preconscious processing, and the outgoing products. By means of conscious symbols we generalize from individual bits of data, assemble them into patterns, and make abstractions from them by scanning, ordering, and arranging temporal and spatial sequences, and so forth. ...Relatively speaking, the processes of conscious symbolic sampling are slow and limited, and provide only weighted fragments of preconscious activity, to make up what is erroneously referred to as 'conscious thought.'"

"Unconscious processes constitute a distorted and even more fragmentary symbolic sample of conscious samples. Note in this connection that it is never the symbolic image, thought, or act which is unconscious, but its relation to that which it is supposed to represent, but masks instead."

Figure 2. Model of Individual Behavior, Its Interruption, and Its Modification.



may become emotional, and this may interrupt the control program.[11]

When an operating program, or enacted role, is interrupted, another program must be selected. The substituted program may be the interrupted program, with the conflicting elements reintrepreted. For example, an individual may decide that the lack of a greeting from a colleague at a convention is not an intentional slight, but is due to difficult perception across a crowded hall. Or the substituted program may be a new program. In this case, the individual must select one appropriate program, or enacted subjective role, from his repertoire of programs. Under this latter model of "rational" behavior, the individual will select that program, or role, which best satisfies the conditional instructions, or decision premises, of that program, or role. That is, the individual will compare his state description of the universe to his repertoire of alternative behavior programs, or roles, to find the role which seems most appropriate.[12] Since there are likely to be some conflicting elements in his detailed perception of the universe, the individual will employ a probabilistic weighting mechanism to arrive at a unified conception (cf. the preconscious and the conscious, note 10).

This analytic model of man provides a framework within which many possibilities exist. But to approach the human quality of man, the model needs to be fleshed out. Humanistic psychology and its writers (Allport, 1955; Bronowski, 1965; Bugental, 1965; Gunther, 1968; Laing, 1959, 1967; Maslow, 1962; Otto & Mann, 1968; Perls, 1969; Rogers, 1961; Schutz, 1967; Shostrom, 1968) do just that.

Humanistic psychology sees man as an organic, whole person, who exists. Life is often seen as a process of discovery: discovery of the self in experience and of the outer world through experience. Rogers (1961: 115f) postulates

[11] In this dissertation, the term "emotion" is used to refer to the common usage--a moderately high level of affect, readily observable to others--and the term "affect" is used to refer to that constant cosymptom of life. There is a wide range of possible causal factors of emotion. Simon (1967: 35) suggests physiological needs, loud cognitive associations, and uncertain environmental events. In contrast to the previously mentioned interrupting mechanisms, emotion belongs to a different dimension. Emotion is not so much an interruptor as a result of an interruption. It may be a cosymptom of an interruption, it is not the cause of the interruption.

[12] "A person chooses for himself that alternative in a dichotomized construct through which he anticipates the greater possibility for extension and definition of his system" (Kelly, 1958: 59).

four characteristics of the "fully functioning" person (a term he prefers to "healthy" person). The fully functioning person is open to experience, trusts his own organism, has an internal locus of evaluation, and becomes more a process than a product.

Moreover, humanistic psychology is optimistic. It sees a whole man as living his life, fulfilling his potential, experiencing joy (Schutz, 1967). It recognizes cultural, institutional, and personal restrictions on the individual, but maintains a "spirit of inquiry" concerning the basic nature of man, his limitations, and his possibilities.[13]

The Association for Humanistic Psychology (undated leaflet) defines the field as centering on a "commitment to the fundamental uniqueness and importance of human life" including "the convictions that all human beings are basically creative and that intentionality and values are basic determinants of human action." Although discussing theater, Spolin's (1963: 3) comments on experience and learning are consistent with this humanistic spirit:

> We learn through experience and experiencing, and no one teaches anyone anything. This is as true for the infant moving from kicking to crawling to walking as it is for the scientist with his equations.
>
> If the environment permits it, anyone can learn whatever he chooses to learn; and if the individual permits it, the environment will teach him everything it has to teach.

Humanistic psychology places great stress on "trust" and "openness." (These words are frequently encountered in reading the humanistic psychology literature; they are relatively infrequent in the literature of sociology and the other psychologies.) A synthesis of the humanistic model of man may be constructed, focusing on these variables.

The major dependent variable is man's effectiveness: how well he is achieving his potential, how fully functioning he is. If the individual trusts himself enough to be sufficiently open to the experience of his organism, which in turn reflects experience of the world, he will discover whatever guidance and control is necessary for his healthy growth. Openness to others promotes individual well-being (Jourard, 1964), while hiding one's

[13]The theories of humanistic psychology generally assume, at least implicitly, a physiologically "sound," "healthy," or "normal" person. This may reflect a concern primarily with the generally healthy middle-class. However, the humanists do recognize the "mind-body" interaction. For example, Maslow (1943) postulates the physical needs as of crucial primary importance.

Returning to the "optimistic" quality of humanistic psychology, Wilson (1967) reviews some of the correlates, facilitators, and hinderences of avowed happiness. Fellows (1966) discusses happiness from a humanistic psychology viewpoint.

feelings or trying to "play the part" of another's expectations hinder authentic behavior (Brumbaugh, 1968).

This is a self-centered model of man, but not in a pejorative sense. Man is a social being; his individual organism naturally reflects concerns of other members of his species. It would only be by keeping closed to part of his experience that man could be, in the pejorative sense, selfish.

As many organization theorists have noted (e.g. Argyris, 1969; McGregor, 1957; Knowles & Saxberg, 1967), one's assumptions of the nature of man and the world influence how he perceives, feels, thinks, and acts. In the following sections, the humanistic-role theoretic-information processing model of man presented in this section will be elaborated and compared with general research findings in the literature.

2.03 Individual and Organizational Change

Growth and change. Both the individual man and the social organizations he creates are open systems, and are therefore subject to factors of growth and of change. While it is possible to use these two words to refer to many differing concepts, this paper shall use them in a specific, if not atypical, manner. To begin with, the individual will be the entity under discussion; the parallel case for organizations readily follows.

Man may be conceived as an open, information-processing system, with a monitor or control program, an interrupting mechanism, and many operating programs (see section 2.02). The overriding goal of this program is to live and to satisfy physical, belongingness, self-esteem, and self-actualization needs.[1] The operating programs may be seen as hierarchical sets of subroutines (cf. the plans, images, and TOTE units of Miller, Galanter, & Pribram, 1960). Using this conceptual schema, growth and decay may be related to program and subroutine elaboration within the existing framework of programs. Change, on the other hand, would relate to the development of parallel or alternative programs, resulting in a new overall program structure. Aging (either growth or decay) is usually "caused" by internal factors, change by external factors.

Since human organizations may be defined as open systems of roles (Katz & Kahn, 1966: 172), and since roles may be directly related to programs, it follows that the above conceptions of growth and change for an individual also apply to human organizations. This description of growth and change will not result in two completely disjoint and non-overlapping subsets. However, it should prove useful in this discussion of individual and organizational change.

Individual growth and change. In the process of becoming an adult, a child learns many new programs. Most of this learning is a growth (with some decay) process. Change phenomena may be important in determining the child's basic personality structure. However, some change phenomena viewed from an isolated individual vantage, may be seen as growth phenomena from a cultural viewpoint. Thus, for example, Erickson (1963) sees the adolescent's identity problem as but one of eight developmental stages of man. The

[1] Note that this goal is coordinate: to live and to satisfy the needs. By making these two aspects conjunctive rather than hierarchical, self-destruction programs, such as suicide, may more readily be understood.

individual's culture will provide a set of roles which may resolve the conflicts in each of these stages. Whether the individual chooses an accepted or disapproved established role, or whether he innovates a new role, will be determined largely by idiosyncratic factors, i.e., the specific interplay of growth and change.

While the separation between growth and change for childhood has considerable overlap, the distinction is much clearer for the adult. By this time, his basic personality is established and he has found his major social roles. Thus, most of the program alteration in the adult is due to program elaboration, rather than alternative program creation.

There are several reasons for this consolidation in the adult. First, the adult has passed through almost of his developmental stages (six or seven of the eight, depending on whether the adult has completed his childrearing). Second, the adult's cognitive field has become more differentiated and its boundaries more rigid (Thompson, 1962: 19). That is, later events are experienced through the framework developed in earlier times. While it is possible for this framework to change, for the adult it usually grows. Finally, where there is a cognitive choice, the adult may prefer to remain within his established framework, thus conserving his "investment" (Homans, 1961).

There are, however, ways in which the adult may change his programs. These closely parallel the interruption mechanism used to select new roles (see section 2.02). When the individual can not understand (i.e., does not know how he is expected to respond to[2]) major segments of his life-space, or universe, he will search for a means of understanding (for an appropriate subjective role). If the individual is able to reintrepret the situation so that he finds current subjective roles (programs) that enable him to understand the situation, no change in the individual will take place. However, if the intrepretation of the situation can be maintained ambiguous for a period, then the individual may develop new roles (programs) before he forces the situation into a definition appropriate to his old repertoire of roles. In this latter case, change will have occured.

[2]The existential expectation of "letting be" is a possible, though not popular, legitimate role. Ignoring an aspect of the universe, or "shrinking" regions of the lifespace, is another non-change solution; it is used more frequently.

Men generally have an intolerance to ambiguity concerning major segments of their universe, and therefore they try to find appropriate subjective roles as soon as possible.[3] Therefore, to permit change, strong forces must be established to prevent premature interpretation of the situation (premature selection of a program or role). These forces are the same as those which interrupt an enacted role, except that they are much more extreme.

The environment may change. But the behavior of a few other people, while sufficient to interrupt a role, usually will not be sufficient to induce individual change.[4] A change of expectations in the entire social world, i.e., in the prescribed role system, on the other hand, may well induce individual change. While small spacial-temporal shifts may not cause individual change, larger shifts may leave the individual with confused expectations.[5] Alternatively, a major goal may be achieved. A man may make his million, and then wonder how to enjoy it. Or a Negro may become discouraged and impatient with the slow progress of equal opportunity statutes, and seek new ways to achieve his objectives. Finally, the individual may become emotional.[6]

Many programs to change individual behavior, such as psychotherapy, sensitivity training, or "the week in the country," are structured around a situation which is new and which inhibits intrepretation according to old categories (cf. Lewin's concepts of freezing, unfreezing, and refreezing, 1947). By removing or reducing the counterforces, they provide the individual an opportunity to try new behaviors and to make new interpretations of his world.

[3]There are some times when men seek ambiguity. However, these rarely refer to major segments of their life-space. Work and family are examples of major segments; an amusement park would be a minor segment.

[4]Of course, if those few others occupy extremely central positions in the individual's life-space, this may be strong enough a force to induce change.

[5]Small and large are relative matters. For a provincial peasant without access to mass communications, a move to a city may cause dislocation. A cosmopolitan business executive may feel comfortable flying around the world, yet he may feel in an ambiguous situation if visiting an urban ghetto for a day.

[6]Again, note that emotion is a cosymptom, not a cause, of interruption. In this connection, another set of cosymptoms may be mentioned. Neurotic and psychotic actions may be viewed as behavior under incomplete or incorrect interpretations of the universe.

Rational, reasonable, and real man. Planned change programs often encounter resistance. One common reason for this is that the planners use an inappropriate model: they often assume their organization's members are rational beings (in the strict economic model sense). Much more often, a "reasonable" or "real" man model would be more appropriate.[7]

Rational Man, the child of economics, has all the relevant information which could be needed in making his decisions, has a strictly increasing monotonic utility curve, can perform any needed calculations, can make infinitely fine discriminations, and always acts so as to optimize his utility. Typically, subjective variables do not enter into Rational Man's preference function.

Administrative Man operates by the principle of efficiency. This principle is

> a definition of what is meant by "good" or "correct" administrative behavior. It does not tell how accomplishments are to be maximized, but merely states that this maximization is the aim of administrative activity ... (Simon, 1957: 39, italics in original).

March and Simon (1958: 205) discuss how external economics change Administrative Man's goal from "optimizing" to "satisficing."

Reasonable Man is a legal concept. Reasonable Man is somewhat similar to Administrative Man, but the lineages differ. The Reasonable Man has general acquired behavioral dispositions, but no idiosyncratic acquired behavioral dispositions (Campbell, 1963). The legal "reasonable man" test is: would any other person occupying the same role, and thus with the same general acquired behavioral dispositions, and with the identical information at the moment, arrive at the same conclusion, as did the person under test. In contrast to Rational and Administrative Man, Reasonable Man does include subjective variables in his utility function. But Reasonable Man is not yet real.

[7] To maintain the aliteration, what is often termed "Economic Man" is here termed "Rational Man" (cf. W. Edwards, 1954; Simon, 1957: 75f, on rationality). Charles W. N. Thompson has helped clarify the concept of Reasonable Man for the author.

It is Real Man's idiosyncratic acquired behavioral dispositions that make him real. While these idiosyncracies are entirely lawful considering the individual's entire past history of reinforcement (and perhaps some genetics), it is they which make prediction of individual behavior difficult.

Four types of expected outcomes to planned change efforts may be differentiated. The first type involves those programs which, if implemented, would cause benefits to each individual member of the organization, as well as to the organization as an entity in itself. ("Benefit" and "harm" are discussed below.) The second would be those programs which, if implemented, would cause a benefit to the organization, but would cause some harm to one or more individual organization members. These two types of programs are the principle ones involved in planned change.

Third, an implemented program may benefit one or more individuals, but harm the organization; such an effort would be deemed unacceptable to the organization. However, an individual with high power may choose such a program for his own benefit, in spite of the consequent harm to the organization. The fourth type of change effort would be one which, if implemented, would cause harm both to the organization and to each individual. Such a program would be unacceptable to the organization and to any non-malevolent individual.

If all change efforts were perceived as the first type, there would be little problem with implementation. Also, if all proposed programs were of the fourth type, the organization would have little reason to continue to support this group of change agents. However, it is with solutions of the second and third types that implementation difficulties arise.

In a simple sense, benefit and harm to the organization may be considered to be the increase or the decrease respectively of the long-run assets of the organization, provided that action which benefits the organization in the long-run may not, in the short-run, cause the organization to cease to survive as a viable entity. The assets of the organization include readily measured cash assets, as well as less readily measured good will (in the strict commercial sense), employee expertise, and employee willingness to produce.

For Rational Man, benefit and harm would have definitions parallel to that for the organization. Reasonable Man would consider not only objective variables, but also general subjective variables. Thus, feelings of economic security, pride in accomplishment, a sense of participation in the decisions of

the organization, and time for liesure all may be considered benefits for the individual. (Reasonable Man assumes some given cultural context; contemporary America is here taken to be the cultural context.)

Although Reasonable Man considers subjective as well as objective assets, any other Reasonable Man would agree with the classification of benefits and harms. However, one Real Man may consider as a benefit that which another would call a harm. Thus, "benefit" and "harm" are defined by the individual's perceptions of the proposed change effort. These evaluations will be consistent across individuals in similar roles for Reasonable Man, but they may differ for various Real Men. Some of the differences between Reasonable and Real Man evaluations may be eliminated by specifying Reasonable Man's role in greater detail (e.g., a marketing manager or a manufacturing manager rather than just a manager); however, some idiosyncracies will also remain with Real Man. It is primarily because of the differences between Reasonable Man and Real Man that implementation problems in organizations arise.

If planned change efforts were all of the first type (individual and organizational benefit), there should be few problems with implementation. However, a change program may change from the first type to the second type (organizational benefit, some individual harm) by a change in the model used to measure individual benefits. A first type of solution under a Reasonable Man model may become a second type of solution under a Real Man model. That is, some people, under some circumstances, do not behave "reasonably." If the "non-reasonable" man is in a powerful position (see Cartwright, 1965, for a lengthier treatment of power), change programs of the third type (some individual benefit, organizational harm) may be involved.

The problem, then, for a group seeking to institute change in the organization, is to determine which powerful individuals will not behave as Reasonable Men for which specific change programs.

From these considerations, four propositions concerning "real man" may be constructed.

a) If an individual evaluates a proposed change effort as being of type one (individual and organizational benefit) he will support it and aid in its implementation.

b) If an individual evaluates a proposed change effort as being of type four (individual and organizational harm) he will not support it and will attempt to hinder its implementation.

c) Predictions of individual behavior for proposed change efforts of types two or three will depend on the relative evaluations of individual and organizational effect, on the individual's degree of "altruism,"

on the individual's risk propensity, and on the individual's temporal "discount factor"--a compensation factor for the time difference between benefits, harms, and the present. (These factors may be related to Figure 4.)

d) The net effect (either benefit or harm) of any proposed project solution must be greater than an individual's threshold for action to cause him to engage in any action: either aiding or hindering implementation. The laws governing this threshold are similar to response threshold laws of psychology (Campbell, n.d.; Hill, 1963).

While these propositions are rather simple, they may be seen as directly related to many more distal propositions and problems of organizational change.

Organizational change. Although organizations may be defined as open systems of roles, the most obvious facet of organizations is that it is men who occupy the positions in the role system. Since organizations are systems or roles, to change the organization it is necessary to change the roles. But since men are involved in the role system, it is necessary, in turn, also to change the men. (Such a change may involve replacement or modification of the men.) The central difficulty in organizational change is to isolate the role system from forces which would prevent or inhibit its change.

There are two principle ways of inhibiting counterchange forces. One is to change the entire role system of the organization at the same time. The other is to change aspects of the role system sequentially and to give continued support to the changed portions of the role system while other portions of the role system remain unchanged. A key in either method of change is to find the leading subsystem in the organization.[8]

[8]Katz & Kahn (1966: 63) define a leading subsystem as a subsystem "whose output exerts the greatest influence on the inputs of other component" subsystems. To make the concept more generally applicable, this author prefers to define the leading subsystem as that subsystem whose output exerts the greatest influence on the "characteristic equation" (G) of other component subsystems. (See Figure 6 and section 2.09 for a more detailed discussion of these terms.) Thus, in the Katz & Kahn formulation, subsystems have differing inputs, while in this formulation, all subsystems have the same potential distal input. However, the proximal input (I) to subsystems may differ because of different filtering procedures (G'). The distal input (U) is the energy from the objective universe.
This proximal input (I) is the same as Katz & Kahn's input. The distinction is useful in discussing subsystem change. In this formulation, a change in the characteristic equation may result in a different output (O) and/or different proximal inputs. Using the Katz & Kahn formulation, it would be more awkard to explain differences in input and output by the single application of the leading subsystem concept. In effect, this formulation

For change to begin to occur, the current operating programs must be interrupted and the selection of a replacement operating program must be temporarily somewhat uncertain. If the changed subsystem is not a leading subsystem, the other subsystems in the organization are likely to further transform the changed subsystem so that the organization as a systematic whole remains unchanged. However, if the changed subsystem is a leading subsystem, the organization as a whole may be altered.

Major changes can usually be attributed to one of two interrupting mechanisms--either to internal system strain or to changed inputs (Katz & Kahn, 1966: 446). Either of these causes may result in further change, either planned or unplanned (Rubenstein & Haberstroh, 1966: 287ff). Of the many attempts at planned organizational change, two methods have been fairly successful: a) direct systematic change and b) continued inhouse sensitivity training of and organizational development with a leading subsystem, usually top management (Katz & Kahn, 1966: chap. 13; Greiner, 1967).

Many aspects of sensitivity training indicate that it has potential for systematic organizational change. In the training group (T-group), the individual is confronted with a novel situation, one in which he cannot immediately find an appropriate subjective role. He may find that most of the roles he does enact lead to unanticipated consequences, and hence will also be evaluated as inappropriate. These are conditions which can readily lead to a search for new, appropriate roles. Since all members of the group are in a similar, searching situation, appropriate prescribed roles may be developed. These prescribed roles may be translated with minimal distortion into subjective roles. In turn, because of the opportunity for practice, new enacted roles may result. The high affect (or emotional) atmosphere serves both to prevent the recursion to old roles and to support the members while searching and learning their new, more effective roles.

When the members of the T-group leave the training sessions and interact with other members of the organization, they will be under pressure to behave according to their old roles. To be effective, the sensitivity training

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focuses on the transformational properties of the subsystem, i.e., the characteristic equation, while Katz & Kahn focus on the environment of the subsystem, its input and output. A further distinction may be made between a leading subsystem and the leading subsystem. The leading subsystem exerts the greatest influence, a leading subsystem exerts a "large" influence on other subsystems.

sessions must give the trained individual support outside of the T-group and must enable him to persuade (with both cognitive and affective elements) his coworkers to accept his new behavior and to alter their own expectations and behaviors, i.e., their subjective and enacted roles.

If the subsystem (or subsystems) chosen for sensitivity training is a leading subsystem and if the training sessions do result in sufficient individual change, then the organization may be changed in this chain-reaction manner. Whether the change is as planned, and whether a more effective organization results, are additional questions.

If the planners (this may be an external change agent or the T-group itself) have a fairly valid understanding of the structure of their organization and its environment, and of the forces within and without the organization, then they should be able to develop plans for change which will result in being implemented. This is not to say that no difficulties will result, but that the difficulties will either have been forseen or may be overcome within the framework of the change plan.[9] The question of the effectiveness of the changed organization is answered by similar conditions, summarized in the phrase, "the wisdom of the planners."

The chief difficulty in change by sensitivity training is ensuring that a leading subsystem experiences the training. If the leading subsystems of the organization are hostile or indifferent to the planned change (or to the new role system), the organization has little chance of changing. Direct systematic change avoids this problem by starting with the cooperation of the leading subsystem (top management) as a given. Thereafter, its problems are the same as for progressive change led by sensitivity trained members: other individuals must be persuaded (in both cognative and affective terms) to accept new roles and these new roles must be supported while the residual forces of the old role system are extinguished.

The central question of planned organizational change, then, is the location and conversion of the leading subsystems of the organization. In a well managed organization, the leading subsystem will soon become aware of

[9]An alternative way of describing the results of effective sensitivity training programs is to say that they result in higher interpersonal competence. The greater the interpersonal competence (Argyris, 1965: 4), the greater is a) the awareness of relevant problems, b) the ability to solve problems in such a way that they remain solved, and c) the probability that the problem-solving process involved has not been harmed or negatively influenced.

changed environmental conditions or of internal stresses and will seek appropriate strategies to ensure the continued effectiveness of the organization. Depending on the specific conditions, these strategies may or may not involve sensitivity training or alterations in the organization's role system.

In a less well managed organization, the leading subsystem may remain unaware of the need to seek new strategies. Under these conditions, it is much harder for the subsystem that is aware of the need for organizational change to induce such change. This aware subsystem could try to directly change the organization even though it is not a leading subsystem. In this case, much effort would have to be expended by the subsystem for rather small amounts of net organizational change. Alternatively, the aware subsystem could work to make the leading subsystems of the organization aware of the need for change, of the change needed, and of effective strategies for achieving such organizational change.

Other, less adaptive possibilities also exist. The aware subsystem could decide that it is not worth trying to influence the larger organization, and could "live" with the old system. Finally, the members of the aware subsystem may decide to leave that organization for another. This may result in the leading subsystems becoming aware that a problem exists, or it may only result in the individuals moving to a new system. (This latter possibility is non-adaptive from the organization's viewpoint; it may be quite adaptive from the individual's vantage.)

The critical questions of organizational change, then, are a) does a need for change exist; b) which are the leading subsystems; c) are the leading subsystems of the organization aware of this need; d) do the leading subsystems have appropriate strategies for implementing effective changes; and d) are there other subsystems, either within the organization or in its environment, which are aware of the need for change, have appropriate implementing strategies, desire to influence the organization, and have the ability to effectively influence the organization.

In the well managed organization, the high technical and interpersonal competence of the leading subsystems should yield effective and adaptive organizations. In less effective organizations, even if there are subsystems that are aware of problems (or of the need for change), the forces against change and the desire ("is it worth it?") of the aware subsystem for organizational change must be considered.

2.04 Effectiveness: Individual, Group, and Organizational

Explicit goals. Much "pure" behavioral science and virtually all "applied" behavioral science is concerned with effectiveness. Inasmuch as effectiveness "may be defined as the degree of goal-achievement" (Price, 1968a: 3), the problem of the definition and measurement of goals is immediately raised. Often "official goals" are chsoen as the focus of inquiry, sometimes "operative goals" are also included (at 3-4). Elite decision-makers are commonly chosen as the reporters of goals. A usual statement of the goal of most formal (profit-making) organizations is to maximize, within a given time period, the income of the organization's members: employees, management, and owners.

Sometimes a few additional goals are recognized. The "informal organization" concept often pits the goals of the employees against the goals of the formal organization. Just because they are human, organizational members will have some goals which are not formally held by the organization (e.g., Crozier, 1964: 80; March & Simon, 1958: 64; Parkinson, 1957; Peter & Hull, 1969; Selznik, 1953: 105). While the perceptive manager will tolerate and even facilitate some informal organization as an adaptive response of a formalized system to unexpected contingencies and changing conditions (e.g., Downs, 1967: 60f), the "individual goals" aspect of the informal organization is often seen as illegimate: key decision-makers often will measure organizational effectiveness against the formal organizational goal.

Some theorists are able to consider parallel goals.[1] Thompson and McEwen (1958) find both competitive and cooperative strategies used by the organization in its interaction with its environment. Tom Burns (1966) recognizes three interacting social systems contained in any organization: the working organization, the political system, and the career structure. The working organization reflects the cooperative interest the members of the organization have in its successful achievements; the career structure reflects the individual's interest in his own advancement, often made at the expense of other organization members; and the political system reflects the interests of various active coalitions.

There are strong pressures on the practitioner against considering several parallel goals. The recent emphasis on cost/benefit analysis has reinforced these pressures. If several possible programs are to be compared to find an optimal program

[1] Serial goals may be seen as connected in a means-ends chain. Parallel goals are not directly, causally related.

a unidimensional metric makes such a comparison relatively easy--easy but not necessarily valid.

Goals are valued states. Cultures, subcultures, and individuals differ in their value structure; they will therefore differ in some of their goals. While some absolute goals may be determined for all humans (cf. section 2.02), these goals are fairly distant (in the means-ends regression) from individuals' and organizations' immediate operative goals. Thus the theorist, systems analyst, planner, or evaluator must establish some criteria for deciding whose values or goals he is to accept as his ideological framework.

There is no a priori criterion for such a selection. A Calvanist orientation may focus solely on the goals of top management, a Populist may heed only the goals of the rank and file employees, and a Socialist may attempt to implement "to each according to his needs, from each according to his ability." Often the decision of the ideological framework to be used is implicitly decided by power considerations. The analyst immediately accepts the ideology of his client or superior.

Rather than accept any such ideology before analysis or evaluation is begun, a more reasonable decision may be made by keeping the decision as to the framework to be employed initially open. Under these conditions, the analyst would attempt to ascertain the goals or values of all potentially affected individuals and groups.[2]

Where individual and group values do not conflict, the question of the framework to be used may be circumvented. Where interactions occur or where values differ, some ideological framework must be established. But the analysis will be more powerful and more adaptive (to such possible conditions as a change in superiors or in the distribution of power) if such framework decisions are made explicit and made after the collection of the value data, rather than made implicitly and instead of the collection of value data.[3]

[2]The question of determining group values is, in miniature, the problem of determining organizational values. Some weighting scheme for individual values must be determined; an ideology given a rationale for such a particular weighting scheme. The answer is discussed throughout this section.

[3]Making goal differences explicit may increase conflict (cf. Edelman, 1964). However, this short-run dysfunction may be resolved in a longer time period. As noted in the next pages, the temporal nature of goals and consequences is an important consideration.

Temporal goals. The explicit recognition of various goals and values is but one requirement for a valid measurement of effectiveness. Another requirement is the recognition of the variable "time." As a subproblem of effectiveness, the optimal allocation of limited resources is an appropriate consideration here. Cash-flow analysis in economics has recognized a monotonic time value of money. That is, future credits are worth less than present assets and future debits are worth more than present assets. However, this monotonic model may not be rational for organizations, and often does not produce rational or reasonable behavior for individuals.

The principal limitation for organizations of this monotonic valuing of resources is that it neglects potential problems in the short run. An organization needs some minimal level of resources to survive. Thus, rather than a simple "maximize profits in the very long-run" criterion, an additional constraint, "provided that a certain minimum profit in the short-run is obtained" more realistically reflects organizational goals (cf. Pfaff & Pfaff, 1967: 283). However, even this constrained criterion cannot rationally be used to control organizational behavior, nor should one feel confident using it to predict behavior in the organization.

Although an organization need not be mortal, the members of organizations, human men, are. Thus, a man's primary planning range will be limited to his lifetime.[4] However, even constrained to an average life expectancy, reasonable allocation procedures must consider another aspect of time. Some resources have peak value periods. This is a non-monotonic function. For example, in animal behavior, imprinting can be seen as highly valuing certain behaviors (e.g., movement of the mother) only during a certain period of time: before or after this period, the value of the behavior is much less. There are also contingent-controlled values. For example, a college course in physics is much more useful after a course in calculus, or a vacation may be valued more highly if a period of work precedes it.

Some psychologists are recognizing that extreme "Protestant Ethic" behavior may be detremental to mental health. This Protestant Ethic doctrine demands

[4]People seem to consider their children, grandchildren, and some significant others as an extention of themselves and, in a secondary manner, plan for the lives of these other entities.

work, which is considered to be a pure cost without benefit, during an individual's life to gain his reward in the afterlife. An increasingly common ideology, however, states:

> Instead of the model of reality being a machine, the new model will be the dance or the symphony. If we can see reality in terms of a dance or a symphony, then we will feel in harmony with, rather than alienated from, nature. We will also feel in harmony with ourselves .... Machine ideology does not value activity for its own sake; it values activity only as a means to an end. Symphonic ideology, on the other hand, values activity for its own sake. (Warren T. Hill. Cultural dehumanization and campus discontent. Explorations, Autumn 1965. Quoted in the Journal of Applied Behavioral Science, 3, 1, 28, 1967.)

There is an interaction between the need for explicitly determining the values of potentially affected individuals and the need for considering the temporal dimension of valued states. If elite decision-makers could absolutely ensure that they and their chosen posterity would remain in their positions of power, the need for recognizing others' values would not be as great. But such ensurance is not possible. Therefore, a wise member of the elite will consider, with some weighting, the values of non-elites, so that if or when conditions change, his values will be considered by the new elite. This recognition of minority rights is one of the practical bases of democracy (cf. Kendall & Carey, 1968). While there is no guarentee that such reciprocity will occur, there does seem to be a universal norm of reciprocity (Gouldner, 1960; Homans, 1961, on distributive justice).

In summary, to approach rational planning, allocation decisions, or goal-achievement measurement, explicit consideration should be given to the valued states of all potentially affected individuals, groups, and organizations. Further, the temporal nature of these valued states should be explicitly considered.

In most organizations, there are at least three salient entities whose goals must be considered for a comprehensive consideration of effectiveness. These are the individual, his work group, and the organization.

The individual. Basic individual goals and some derivative goals were discussed in section 2.02. Man has physical, belongingness, self-esteem, and self-actualization needs. Man lives, and directs his attention to satisfying these needs. He is a process of becoming his potential; he strives toward full functioning.

The work group. The work group[5] exhibits elements of both individual and organizational effectiveness. It is concerned with its task, and it is also concerned with the needs and goals of its individual members (Cartwright & Zander, 1968: 301f). In an R&D laboratory, the group's task may be seen as making good decisions and providing others with information so that they can make good decisions. (The R&D laboratory is considered in greater detail in this section under organizational effectiveness, and in section 2.09 under creativity.)

Closely connected with group effectiveness is managerial effectiveness and leadership. Much of the early literature on leadership focused on the characteristics of the good leader. For example, there has been a considerable literature on "democratic versus authoritarian" leadership styles (e.g., Anderson, 1959; Korten, 1962; White & Lippitt, 1960).[6] This focus on a single factor of the leader's behavior has been broadened to also include the power of the leader (e.g., Pelz, 1951) and the nature of the task (Fiedler, 1968). This broadening focus is reflected in Hollander and Julian's review (1969) of contemporary trends in leadership research. However, although increased attention is being paid to external factors, factors internal to the manager are still significant influences on his behavior (cf. Zaleznik, 1963).

Cummings and ElSalmi (1968) have reviewed the empirical research on managerial motivation. They find two basic schools of thought, that of Herzberg and that of Porter, but they find that the concept of psychological and social needs underlie both. Further, they see the need for explicitly testing the assumed linkage between managerial motivation and organizational effectiveness.

[5] Traditional organization structures have had the individual a member of only one work group, reporting to one boss. Modern structures, such as project teams and matrix organizations, may give an individual membership in several groups at one time or may repidly change his membership over time (Davis, 1962; Goode, 1960; Haberstroh, Baring, & Mudgett, 1968; Kukjian, 1963; Lazar & Kellner, 1964; Likert, 1967; Mee, 1969). While there may, in this case, be slight parametric variations from this section's description of group effectiveness, the central thrust of it should remain valid.

[6] In his study of leadership styles among English managers, Sadler (1970: 19) found the consultative style was most consistently preferred. In addition, leaders who were seen as having distinct and identifiable styles were more effective in promoting confidence and satisfaction, whatever style they adopted, than those without a distinctive style. Sadler suggests that "one important characteristic of the successful leader is consistency of behavior, which enables subordinates to know where they stand with him and to predict his actions and reactions."

In addition to research on the characteristics of the leader, there is a growing literature on the functions of leadership: on accomplishing "a goal through the direction of human assistants" (Prentice, 1961). For example, Nealey & Fiedler (1968) have found that there are important differences between the functions of middle managers and those of top managers; thus different individual behaviors are also required.

Perhaps the findings from the research on the leader can best be summarized by Tannenbaum and Schmidt's (1958: 101) description of the successful leader as both insightful and flexible: as "keenly aware of those forces which are most relevant to his behavior at any given time ... /and/ able to behave appropriately in the light of these perceptions."

The organization. The goals of the organization itself, discounting those directly reflecting the goals of individuals and groups, are generally rather impersonal. Since the organization needs people, satisfaction of some individual goals is an important means for the organization: a means to achieving its own goals.

Bennis (1962b) derives his criteria for organizational effectiveness from considerations of individual health. His three criteria for the healthy organization are adaptability, identity, and reality-testing. While these are useful conceptual criteria, they are not easy to operationally measure.

Mahoney (1967: B77) studied managers' perceptions of mid-range criteria of organizational effectiveness. These criteria were "intermediate between unique operating measures which apply only to single organizations and general criteria applicable to all organizations but which cannot be assessed except at terminal points in the organization's life." Although twenty-four dimensions were found in the analysis, the study revealed that most managers operationally place primary reliance on only a few dimensions.

In a subsequent study, Mahoney and Weitzel (1969) compared managerial models of organizational effectiveness in general business organizations with those in research and development laboratories. Again they found that managers utilized only a few dimensions in their judgments, but that the dimensions utilized in R&D were different from those of general business. R&D organizational effectiveness was perceived as being strongly influenced by reliability ("meets objectives without necessity of follow-up"), cooperation ("operations scheduled and coordinated with other organizations; rarely fails to meet responsibilities"), and development ("personnel participate in training and development activities; high level of personnel competence and skill"). In their discussion, Mahoney and

Weitzel suggest that the differences between general business and R&D criteria may be due to the different nature of the technologies employed (cf. Emery & Trist, 1960; Harvey, 1968; Hunt, 1970; Woodward, 1965), the incomplete knowledge of cause-effect relationships in R&D (cf. Thompson, 1967), or the professional orientation of researchers.

R&D objectives. The general organizational objective of an industrial research and development laboratory is to maintain or increase the viability of the industrial firm. This viability objective may be broken down into survival and profitability; and further broken down into more measurable operating objectives such as dollar assets (absolute and rate/GNP rate), profit per stock share (absolute and rate/GNP rate), market share/industry, and human assets (technical and interpersonal competence). However, the R&D laboratory does not deal directly with these financial operating objectives.

The R&D lab's contribution to the firm's viability is indirect and long-range. The basic function of a R&D lab is to exploit scientific and technical knowledge to enhance the firm's viability. (This neglects a secondary function of the lab, or of any subsystem: enhancing its own viability. Such subsystem may, at times, be counter to main system objectives.) While experience in the lab may enhance its personnel's interpersonal and technical competence, scientific and technical knowledge will not, by itself, lead to survival or profitability. A product[7] must be developed and must be sold. Manufacturing departments are concerned with making a product, and marketing and sales with exchanging that product for money. R&D's function is to ensure that the firm will have designs for products that can be sold and to decrease the cost of manufacturing them.

If an organization's environment were unchanging, once a firm found a profitable product it would have no need for R&D.[8] However, the organization has several dynamic enviro nments and the organization itself is not static (cf. Katz & Kahn, 1966: 201ff). Scientific knowledge grows and changes,

[7]Evan an organization whose sole output is research must sell its product. It must convince someone or some group to pay for a report, a patent, or the continued operation of the lab. Whether the "sale" is made before or after a product is "completed," a sale must be made. Projects must be "sold" within the organization also (e.g., by the originator of the project idea to management), but this "selling" does not directly contribute to the profitability of the firm.

[8]This assumes that the firm did not wish to make more profit by making more products, or to grow in other ways. Also, the R&D function may be served by buying it from another organization, although this may be more costly and less adaptive.

consumers' preferences and competitors' practices change, and government and other agency regulations change. Given these dynamic environments, an organization's current profitability does not ensure its continued viability. The R&D lab deals with ideas, with information. There is a long and fragile connection between R&D information and final product sales and profits.

Because of this delayed and indirect contribution of R&D to profit, it is difficult to use money terms in constructing operating objectives for R&D. Even with an extremely long study, R&D dollar contributions to eventual product sales is difficult to measure, and the opportunity costs (what would have happened if ...?) are even harder to estimate. A more proximal measure of R&D effectiveness focuses directly on information and does not require such lengthly study.

This information effectiveness measure centers around probability distributions of possible states of the universe. R&D's function is to find scientific knowledge (increase the probability of the "truth" of a set of possible scientific states and decrease the probability of the "truth" of competing scientific states) which will be useful to the organization under the environmental conditions with the greatest expected value (probability and utility). From this description of the function of the lab, two measures can be evolved: confidence and regret.

In its scientific work, the personnel in the lab want to be able to rationally have significantly greater confidence in a set of hypotheses than in rival hypotheses. Since it is people who produce, evaluate, direct, and manage the lab's work, this objective in its operational form becomes an evaluating individual i, at time t, changing his confidence in the truth of a set of hypotheses k, as reported by j (V(i,j,k,t),where V is the degree of confidence). To the extent that Confidence (i,j,k,t) remains high for one set of j's and low for rival j's as t increases, the lab is producing good scientific work (assuming i's who are competent to reasonably evaluate the work).

But good scientific work does not necessarily promote the viability of the organization. Such work should contribute to the eventual profitability of the firm. Again assuming reasonable evaluators, to the extent that the evaluating individual i, at time s, does not regret work, project, or decision k, done during time t, when viewed from the objectives of entity j, that work may be considered to contribute to organizational effectiveness, provided the organization is one of the j's. (Note that in contrast to uses of the tensor for interpersonal relationships--as in Figures 2,3, and 4--for Regret, j is taken as the other entity and k is taken as a situation. This is because the primary

relationship is seen as between i and k, under the parametric influence of j.) Thus the laboratory will want to minimize Regret (i,j,k,t)s for all s, t, and for all relevant j. A minimal set of relevant j's would be the laboratory, the individual work groups in the lab, the individual researchers, other departments of the organization, and society at large.

A secondary parametric condition of j, besides objectives, may be considered for Regret. Man is not "rational," he cannot have complete information. But he can have more or less relevant information. Thus, the base state of information, j', may be considered if additional detail is desired. j' may range from considering the information those working on k (this may be noted as k') had at time t; considering the information that was available to k' at time t; considering information that was available at time $t + x$; to considering no restriction of information (i.e., assuming truly rational man). If j' is not specified, it can be assumed to be without consideration of restrictions of information, i.e., without considering the limits on rational decision-making, does i regret the decision k. Note that with these secondary variables, the tensor becomes Regret $(i,j-j',k-k',t)r,s$. (r and s are methodological subscripts. r refers to the reporter of the information, s refers to the time of the report.)

The Confidence and the Regret measures can be combined in attempting to evaluate the contribution of R&D toward organizational objectives. Thus, at any time s, an evaluating individual may be more or less sure that a given past decision k, was helpful to the organization.

The timing of decisions. In a completely static or completely predictable world, rational man need not worry about the speed of decision-making. In fact, rational man instantaneously makes perfect decisions. But rational man does not exist and the organization and its environments are neither static nor completely predictable. Given dynamic conditions, a wise man should make his decisions as quickly as possible, so as to minimize the time the organization is not properly adjusted to its environments. As considered here, a wise man makes good decisions. But all decision-makers are not always wise. Therefore, sometimes it is better to wait for more information before making a decision.[9]

[9]The time of decision should not be confused with the time of the implementation of the decision. Since other decisions will be made using the first decision as a premise, it is the time of the decision, not of implementation, that is here of prime importance. For example, an individual may decide today to begin work on a new project next month. He may then plan to reduce work on his current project and to order equipment. If this initial decision is carried out, it will not have been implemented until next month, but it has had consequences before that time.

A decision is based on a number of premises, some of which are predictions or expectations of future states. By waiting, these expectations may be tested. Neglecting the other changes in the world that have occured, by waiting and correcting poor expectations,[10] better decisions can be made. But these other changes cannot be neglected: they may alter the validity of other premises. Thus, a basic conflict in decision-making is: should an individual make his decision now or should he wait for additional information.

In industrial situations this question is of utmost importance. Competitors may steal markets with improved products or may capture markets with new products. New regulations may necessitate lengthly changes in products or procedures; changes which may be relatively inexpensive now but more costly later (e.g., changing labeling requirements or additional building regulations for a new factory). And new scientific information may enable the firm to capture or steal markets from its own competitors.

If a decision is made too soon and later events provide information that indicates a counter decision must be made, decisions which used the first decision as a premise may need to be altered also. (This may be described as a situation of overcontrol.) If any of these decisions have been implemented, organizational resources will have been less than optimally used. However, if a decision is made too late, opportunities may be missed. At a minimum, additional time has been used in finally making the decision and other decisions will have been harder to make. (Other decisions will include as premises expectations concerning the eventual outcome of the first decision. Since this first decision premise is uncertain, it will cause greater uncertainity in later decisions. Decisions are made--or made easier--as uncertainities reduce.) Thus, for any decision there is an optimal period of time to make it; an optimal period surrounded on either side by periods of greater cost to the organization and loss of profitable opportunities.

If a decision is made and later events do not prove signfiicant (in terms of decision sensitivity) premises false or poor, that decision was not made too soon. However, if premises are proved poor, the decision may have been made too soon. Whether it has or not depends on the cost of waiting and the benefit

[10]The term "poor" rather than "wrong" is used to emphasize that expectations really result from probability distributions, rather than from discrete dichotomous categories. The distributions may be partitioned into categories, but the underlying basic mechanism is the distribution.

of the improved decision (some improved decisions may not be worth the cost). Since decisions always include, at least implied, premises that cannot be tested until much later times (e.g., the continued operation of a capitalistic system), a final answer on the appropriateness of a decision and its timing cannot really be made. However, good answers can be made, using measures such as Confidence and Regret, described above.

Since the value of a quick decision depends on later events, it cannot easily be directly related to organizational effectiveness. Perhaps the best that can be done is to partition an organization's subsystems and its environments into those potential states which probably would require an extremely rapid decision, those probably requiring a quick decision, and those probably requiring only delayed decisions. A finer partitioning may be made by considering hours, day, and months, and by making more explicit the potential states and their implied expectations. Under this schema it may be found, for example, that most R&D management decisions on project selection and termination should be made over a period of months, many marketing decisions should be made within weeks, and some management decisions should be made within hours.

These examples are rough and speculative. A post hoc study could be made to determine the distribution of decision times for various organizational subsystems making various kinds of decisions and relating these decisions to some measure of organizational effectiveness. But this is not a major concern of this paper. Since questions concerning the speed of decision-making can be so contingent upon later conditions, it can be more useful to focus on the speed and accuracy of decision premise transmission.

The phrase "speed of decision-making" would imply that the period under consideration is that between when an individual realizes (at a conscious level for decision, preconscious also for selection) the need for a decision and his final decision. But the critical element is the time of the final decision, not the speed of the decision. (The speed of decision has some relation to the cost of the decision-making process itself, but this is not a direct relationship. Time and effort expended may be related to that cost, but not time alone.) The element of speed becomes important when considered in relation to time of realization of need of decision; thereafter the timing, rather than the speed, of the decision is the critical variable.

After an individual realizes the need for a decision (this is itself a decision premise), his estimation of the situation will specify the time he should spend in making that decision. In turn, his estimation of the situation will depend on the premises he holds. While later additional information may alter his specification of the time he should spend in making the decision (this may be a conditional as well as absolute time: after Mr. A makes his decision; when the experiment shows a significant result; or a total time of four hours by next month), the final decision, the time spent in making that decision, and the time of the final decision are all decided on the basis of decision premises. Thus, it would seem that an individual should receive as many decision premises as soon as possible. But this may cause premature decisions and overcontrol. As discussed above, not all expectations (or premises, which are expectations deemded to be relevant) are valid or confirmed.

The problem is somewhat resolved by realizing that an individual does not start every decision de novo. An individual holds a number of expectations, or decision premises, as the result of his prior experiences in life, and specifically, as part of his role (cf. section 2.02). These underlying decision premises guide the individual in deciding how to allocate his time, as well as in his final decision.

In a sense, the individual is continually making the study mentioned above, partitioning his lifespace into rapidly changing and fairly static probability distributions. A competent individual's lifespace (expectations) will fairly well represent reality (later confirmation of the expectation); less competent individuals will more often find their expectations unsupported.[11] Thus, the relation between a decision and its organizational effectiveness is mediated by two factors: the individual's general expectations and the premises specific to the decision.

The question of decision effectiveness then reduces to: what is the relation between the flow of premises specific to a decision and organizational effectiveness. It may be hypothesized that: assuming technically and interpersonally competent personnel, the more speedily and completely decision premises flow in the organization, the more effective the organization will be. By assuming competent personnel, a fairly accurate set of general expectations are likewise assumed, so that specific decision premises may be properly

[11] An individual may be competent in one set of situations, and not in another. He may be technically competent when dealing in organic chemistry, but not so competent in other scientific fields, and fairly incompetent in interpersonal relations.

evaluated. Premises must be fairly completely, as well as speedily, communicated. This completeness and explicitness will aid in the evaluation of the premise and its relation to urgency of action and final decision.

For example, a decision premise that "the market will buy a million units of product x if we can distribute them starting next month" may be incomplete unless accompanied by such often implicit premises as "if they can be sold for under a dollar each" and "this estimate was made by Mr. B, who is known to be notoriously optimistic." If the complete premise is not given (or able to be completed by general experience, e.g., knowledge of Mr. B's optimism), a poor decision may be made--in this case, rushing into research and production.

Since the decision-makers are assumed to have a fairly accurate set of general expectations, they should be able to estimate the danger of overcontrol--the chief danger of having information too soon--and usually avoid it. But this assumption may be questionned as assuming away the problem. It doesn't however, for most organizational operations assume competent personnel, personnel that are able to fulfil their roles. In the event that parts of the organization know that other parts are deficient in certain areas (e.g., likely to overcontrol or to be highly sensitive to changes in weekly scientific progress in experiments), information that they provide the organization that is likely to reach such a sensitive individual or group should explicitly and plainly include whatever secondary premises are necessary so as to compensate for their general competency deficiency. If the individual is so deficient that no explicit caution will compensate, such potentially unstabilizing information should, if possible, be isolated from the incompetent (at least in this area) individual, unless the potential sender, on the basis of his competent general expectations, feels such information will be reasonably, rather than irrationally interpreted.

Of course an organization will be more effective the more competent more of its personnel are. There are, however, some "perceptual distortions" inherent in the role system of most organizations. Thus, salesmen are very likely to hold expectations and perceptions differently than basic researchers. Such differences are, in a large part, a result of the demands of the specific roles (and somewhat of the personalities of the men who choose those work roles). To the extent that there are "role biases," these may also be compensated for by information senders.

Thus, an effective organization should be one whose personnel rapidly and completely send information or decision premises to the proper people in the organization. Such complete transformation includes a) "translation," when necessary and possible, to compensate for idiosyncratic and role differences in perception, interpretation, and expectations, and b) explicitness of premises, especially for those premises not held in common by others.[12]

Measurement. Measuring organizational effectiveness has been a difficult problem for the general organizational theorist (Barton, 1961; Georgopoulos & Tannenbaum, 1957; Price, 1968a). As productivity, it has been relatively readily measured for manufacturing groups (e.g., number of units produced per hour, scrap reduction, safety), but even with such a well structured situation, there are multiple possible indices of effectiveness. For research and development, the effectiveness problem is much more severe.

Utilizing a general mathematical model, Horowitz (1963) summarizes and critiques various approaches to evaluating the economic results of R&D. While these may be useful for retrospective studies, the long time lags involved, often five years or more, restrict the usefulness of such economic approaches for shorter-term research. In addition, Horowitz believes that the economic impact of R&D should be measured at the level of the individual firm, rather than at the broader level of the economy or industry or at the narrower level of the individual research project. Such a level of analysis is virtually incompatible with research aimed at evaluating the effectiveness of groups within the R&D lab or with short-term action research or change programs.

But economic results are only the indirect products of a R&D lab. The direct product is information. This is more readily measured, although there are two aspects of R&D that make its control and evaluation difficult (Rubenstein, 1957). The first is the uncertainity about the outcome of individual projects; the second is the difficulty of attributing the "success" or "failure" of a project to R&D rather than to other factors, such as manufacturing, marketing, national economic conditions, etc.

Rubenstein finds information to be the key to the effectiveness of R&D (ibid., 99). "Useful economic results for any R&D program depend on the quality of

[12]Of course, individuals are also subject to information overload. Competent personnel also will rate the priority of the decision premises they may communicate, the potential receiver's information processing capability, and his rate of incoming information. Such "filtering," however, is to prevent system overload, not to promote individual competitive advantage or defensiveness.

information that the laboratory provides to the organization as a basis for new and improved products and processes." Argyris (1965, 1968c) is also concerned with communication and information exchange, but his focus is more on the concrete individual.

Argyris believes that most American organizations suffer from low interpersonal competence. Such interpersonal incompetence hinders communication. His studies (1965: 197, italics omitted) have led him to hypothesize that "researchers (engineers or physical scientists) tend to be predisposed, relatively speaking, toward interpersonal incompetence." Thus, in an R&D laboratory, where many of the decisions are unprogrammed (Simon, 1965) and where information exchange is the sine qua non, accurate communication may be less likely than in other parts of the organization which make programmed decisions or which are less interpersonally incompetent.

The interpersonally incompetent are generally uncomfortable with feelings, openness, and risk-taking in interpersonal relationships. This leads to a culture that tends to reward conformity; mistrust and frustration increase; and individuals begin to question the motives of others. These questions, fears, and defensive behaviors eventually act to make technical problem solving less effective (Argyris, 1968b: 354).

2.05 Trust and Related Variables

Trust is a word that is used not infrequently in common speech. Both in ordinary speech and in some research, its definition is left implicit. Three explicit definitions of trust[1] follow. One is a common dictionary definition; the second is stated in explicit, experimental terms; and the third is phrased in more clinical terms.

> Trust, assurance, confidence imply a feeling of security. Trust implies instinctive unquestioning belief in and reliance upon something. Confidence implies conscious trust because of good reasons, definite evidence, or past experience. Assurance implies absolute confidence and certainity. (American College Dictionary, 1960: 1303)

> An individual may be said to have trust in the occurrence of an event if he expects its occurrence and his expectation leads to behavior which he perceives to have greater negative motivational consequences if the expectation is not confirmed than positive motivational consequences if it is confirmed. ...A person gambles or takes a risk when he perceives that his potential gains from taking the risk are greater than his potential losses. ...Hope which leads to an investment of time, energy, self, etc., which is in any way lost or damaged as a consequence of nonfulfilment, is equivalent to trust. ...An individual may be said to be suspicious of the occurrence of an event if the disconfirmation of the expectation of the event's occurrence is preferred to its confirmation and if the expectation of its occurrence leads to behavior which is intended to reduce its negative motivational consequences. ...Fear does not necessarily imply behavior to prevent the negative emotional consequences of the feared event. (Deutsch, 1958: 266f)

> What we here call trust coincides with what Therese Benedek has called confidence. If I prefer the word "trust," it is because there is more naivete and more mutuality in it: an infant can be said to be trusting where it would go too far to say that he has confidence. The general state of trust, furthermore, implies not only that one has learned to rely on the sameness and continuity of the outer providers, but also that one may trust oneself and the capacity of one's own organs to cope with urges; and that one is able to consider oneself trustworthy enough so that the providers will not need be on guard lest they be nipped. (Erikson, 1963: 248)

The infinitive "to trust" requires an object. This object delineates what specifically is trusted. When the object of the trust is the self, additional connotations enter into the definition of trust. Trust of self may be seen as an important element of ego strength. "The ego is the organizing, governing, co-ordinating center of personality, whose primary tasks are to maintain

[1] Throughout this chapter, references are made to additional researchers' conceptions of trust. Additional authors on trust include Brown (1969); Carrier (1963); Deutsch, Krauss, & Rosenau (1962); Friedlander (1970); Kelley & Ring (1961); Pilisuk & Skolnick (1968); and Rotter (1967, 1970).

psychic harmony and to 'adapt' to the demands and possibilities of the environment" (Keniston, 1965: 364). However, besides these controlling functions of the ego, ego strength also involves regression in the service of the ego: "the ability of the ego to, as it were, 'shut itself off' and thereby to remain open to the childish, the sexual, the creative, and the dreamlike" (ibid., 365).

Trust of the self may be seen as a feeling that one is capable of dealing with the probable contingencies of his environment. This concept of trust does not assume a beneficent environment, only that one can cope fairly successfully with the environment. As with the general infinitive form of trust, trust of the self needs an environment specified.

In this paper, it is assumed that trusting behavior is always exercised within a given environment. This environment may be the family, the work group, the industrial firm, the national society, or all humanity. The given environment should be clear from context. In contrast to the environmental specificity of trust of others, when trust of self is referred to in this paper it will not, unless specifically stated, refer to any given environment, but to all probable environments.

Open and nondefensive behavior is rationally permitted when the individual trusts his immediate environment and himself. Even assuming trust of self, however, there are still many environments that are not trusted (cf. Carrier, 1963). For example, while there do exist many international cooperative agencies, cooperative industry trade organizations, and harmonious intra-firm relations, it is also true that current international relations are being carried out primarily in a competitive framework, that severe competition exists within the automobile and oil industries, for example, and that there are fewer top executive positions available than people who would like to occupy them.

Although the general thesis of this dissertation is that open behavior can promote effectiveness, it should be recognized that indiscriminate openness is not being suggested. "The problem for the group /and for any individual/ is to find a principle of appropriateness that supersedes the simple norm that authentic open communication is always a good thing" (Schein & Bennis, 1965: 298). Some of the variables in Figures 3, 4, and 5 help establish when conditions are appropriate for openness (cf. Goode, 1967).

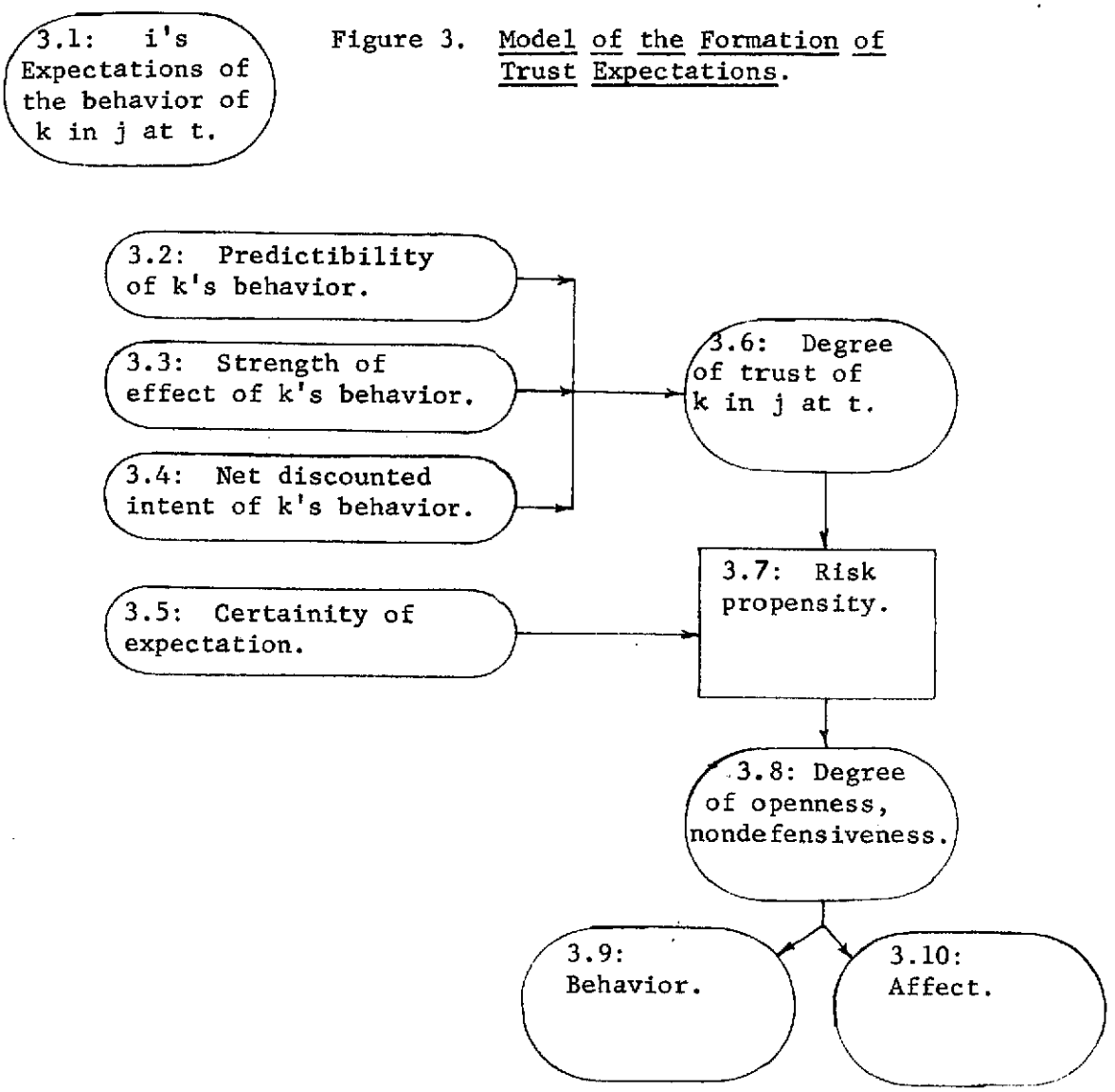

3.1: i's Expectations of the behavior of k in j at t.
3.2: Predictibility of k's behavior.
3.3: Strength of effect of k's behavior.
3.4: Net discounted intent of k's behavior.
3.5: Certainity of expectation.
3.6: Degree of trust of k in j at t.
3.7: Risk propensity.
3.8: Degree of openness, nondefensiveness.
3.9: Behavior.
3.10: Affect.

Figure 3. Model of the Formation of Trust Expectations.

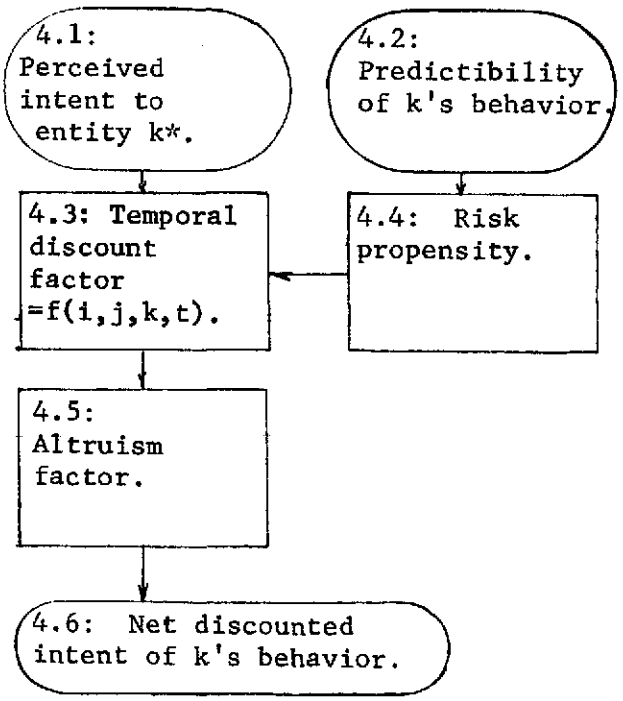
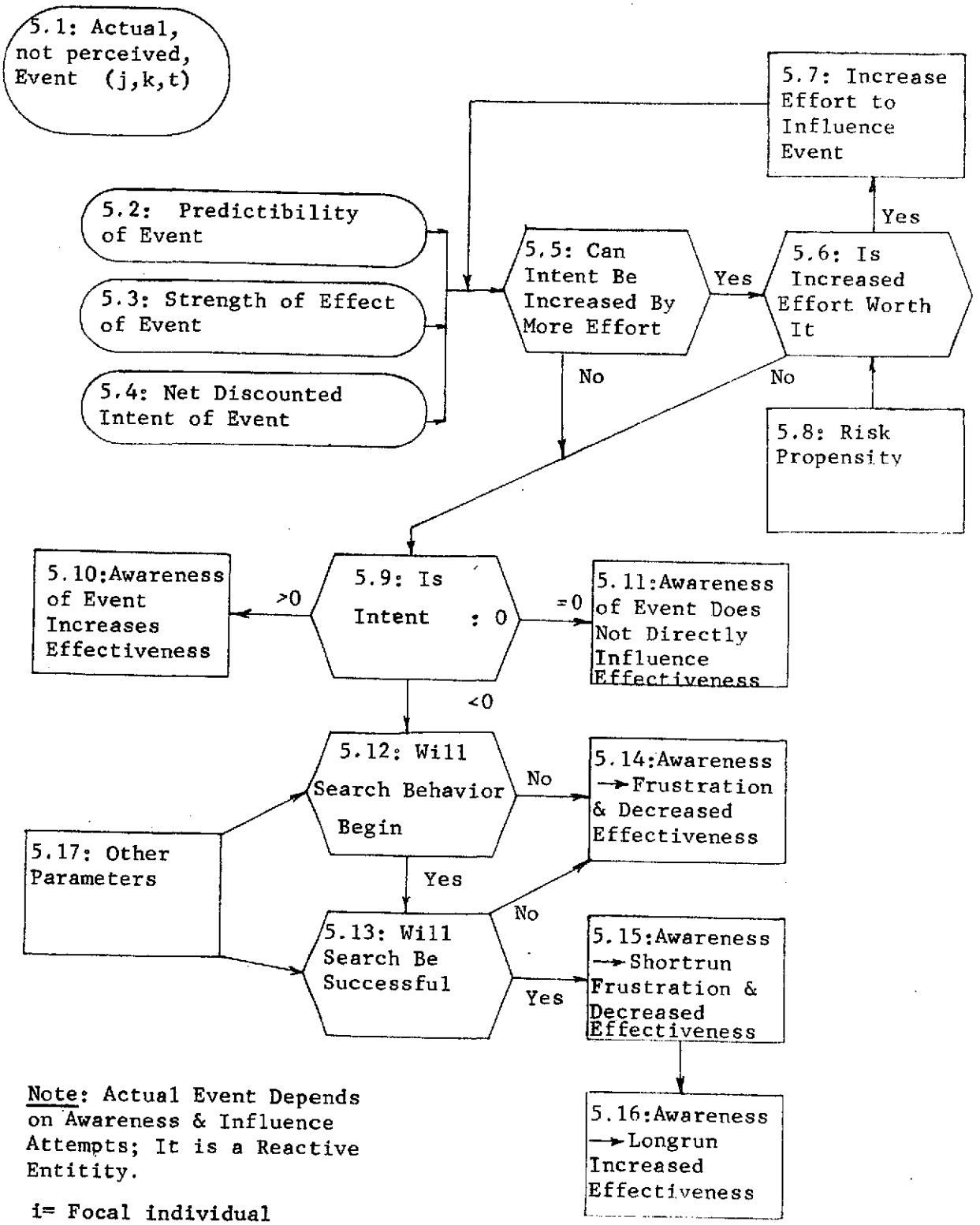

4.1: Perceived intent to entity k*.
4.2: Predictibility of k's behavior.
4.3: Temporal discount factor =f(i,j,k,t).
4.4: Risk propensity.
4.5: Altruism factor.
4.6: Net discounted intent of k's behavior.

Figure 4. Detailed Model of the Determination of Intent.

i= Focal individual
j= Physical and social environment
k= Target entity (individual or group)
t= Time

Figure 5. Parametric Relationships Between Awareness and Effectiveness



Note: Actual Event Depends on Awareness & Influence Attempts; It is a Reactive Entitity.

i= Focal individual
j= Physical and social environment
k= Target entity (individual or group)
t= Time

Figure 5 indicates parametric relationships between awareness and effectiveness. Figure 3 shows the relationships between open, nondefensive behavior, trust, predictibility of others' behavior, intent (beneficient or malevolent) of that behavior, and the environmental setting. Figure 4 indicates in greater detail how risk propensity, temporal discount factor, and altruism influence intent.[2] The figures are drawn parametrically; that is, the parametric influence of social entity (individual or group) k in environment (physical and social) j at time t on individual i is actually under consideration. For example, Jeff's (i) trust of his boss (k) in January (t) on matters involving Jeff's task (j) is one specific relationship. Parametric variations could include Jeff's trust in June (a new t), personal issues (a new j), or Jeff's co-workers (a new k).

Figures 3 and 4 indicate some of the major variables associated with trust and openness. Table 2 presents an ad hoc typology of additional variables associated with trust, and indicates some research instruments that have been used to measure them. The table has two sets of numbers: one set indicates typology categories, the other set (#) refers to the instrument numbers in the Northwestern SCALES inventory (Kegan, 1970a). Parenthetical notations refer to secondary sources, other uses of the instrument, or related articles. A plus sign (+) after an author's name indicates "et al." References for those instruments with a SCALES number, and for those without such a number, are given in the appendix.

The two major factors leading to the development of trust of a specific object k (be it person, group, situation, event, or environment) are: a) sufficient predictibility of that object and b) sufficient non-harmfulness or beneficence (strength of intent) of the object. While these developmental factors are stated in rather cognitive terms (the strictly cognitive aspects of trust may be termed "confidence" in the non-harmfullness of the situation), "trust" is a combination of cognitive and affective conditions. Trust may be seen as a preconscious condition permitting one to enter a situation with minimal defensiveness. Its behavioral manifestation involves opening oneself up to a situation, exposing oneself to the remaining unpredictibility of the situation.

[2]The discount factor refers to the temporal value of goals (see section 2.04). Bruner and Tajkel (1961), Kogan and Wallach (1964), Lillibridge and Lundstedt (1967), Lundstedt (1966), and Starr(1969) report studies of risk. Altruism and equity have been discussed in Berkowitz and Friedman (1967), Friedrichs (1960), Krebs (1970), Latane and Darley (1969), Lawler (1968), Morgan and Sawyer (1967), Pritchard (1969), Pruitt (1968), Sawyer (1966), and Schaps (1970).

Table 2

Variables Associated with Trust, Research Instruments Measuring Those Variables, and Related Articles

I. Trust of Self

1.0 General personality

FIRO-B, #369

Interpersonal check list, #434 (Altrocchi +, 1960)

MMPI-K, #346

Story completion tests, Miller +, 1960.

1.1 Ego strength

MMPI-Es, #180 (Miles's restandardization, #431)

1.2 Self-acceptance

Group semantic differential, Burke & Bennis, 1961. (Sherwood, 1965)

Self-esteem scale, #382

Self-rating form, #117

Sentence completion test, Dorris +, 1954. (Bass, 1962; Rubin, 1967)

1.3 Self-actualization

Interpersonal competence coding categories, #111

Short-form measure of self-actualization, #121

II. Trust of Other

2.0 General and political trust

Alienation, anomia, and authoritarianism items and factor scales, #414

Beliefs, #358

Cynicism toward government and politics items, #418

Faith-in-people scale, #106

Governmental cynicism scale, #410

Interpersonal risk scale, #448 (Lillibridge & Lundstedt, 1967)

Interpersonal trust scale (Read), #338

Interpersonal trust scale (Rotter), #347

Jungle scale, #413

Norms (COPED form A-4), #349

Political cynicism scale, #409

Political trust index, #450

2.1 Risk taking

(Kogan & Wallach, 1964)

(Slovic, 1962)

Table 2 cont.

2.2 Fear

Fear of rejection, #124

Primary Affect Scale, #429

2.3 Locus of causality, of control

Control questions, #112

Feelings of internal vs. external control of fate, #123

I-E scale, #433

Mach V attitude inventory, #348

2.4 Cognative structure

2.41 Modes of perception

Myers-Briggs type indicator, Sensation-intuition scale, #172

2.42 Simplicity-complexity

Barron-Asch attitude questionnaire, Barron, 1953. (Bruner & Tajfel, 1961)

Barron-Welsch art scale, Barron 1953.

2.43 Certainity-provisionalism

2.44 Rigidity-flexibility

Dogmatism scale, #380 (Bacchiano +, 1969; Ehrlich +, 1969; Powell, 1962)

F scale, Adorno +, 1950. (Deutsch, 1960)

Rigidity scale, #432

III. Openness

3.1 Physiological-psychological

3.11 Strain

Index of job-related strain--JRS, #128

Index of psychosomatic symptoms--PS, #130

Scale of premorbid adjustment, #421 (Baxter +, 1963)

3.12 Speech distrubances

Speech disturbance categories, #107

3.2 Openness to experience

Experience inquiry, #344

3.3 Communication behavior

Behavior categories, Gibb, 1961.

3.31 Intimacy

Intimacy-scaled stimuli, #336

Methods to determine the norms of address, #174

Nonlinguistic moves toward intimacy questions, #173

Procedures for determining forms of address, #109

Seating arrangements: questionnaires and a laboratory measure, #105

Small group ecology, #175

3.32 Input

Authoritativeness and character of a speaker scales, #132

Categories of barriers to communication, #293

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Prisoner's dilemna, Rapoport & Chamah, 1965.

(Deutsch & Krauss, 1962)

2.06 Perception and reality

Man has undergone many changes since Adam and Eve. The Newtonian Revolution "created" a mechanistic clockwork man. Adam Smith "created" an economic-rational man, and Freud "created" a man subject to irrationality. Today, the General Systems theorists (von Bertalanffy, 1956; Buckley 1968) have given us a man who is an open subsystem in an environment of other open subsystems.

Mankind existed before and after Newton, Smith, Freud, and von Bertalanffy, and yet the ideological revolutions of each of these theorists did change the "objective reality" of what man was. Without going into the metaphysics of the nature of truth, it can be stated that if a group of people believe an assertion, for that group at that time the assertion is true.[1] This assertion may involve the relative motions of the Sun and Earth, the "true" nature of man as competitive or cooperative, the determinants of human behavior, or the desirability of eating sweatbreads.

The model of man presented in section 2.02 identified four elements in the decision-making processes of man's behavior: a) the objective state of the universe and its component parts, b) the individual's preconscious perceptions of the universe, c) the individual's conscious coding of the universe, and d) the individual's selection mechanism. Perception is a key element, a bridge between the "objective" state of the universe and man's awareness of his world; between the other and the self. But perception is not a fixed, static thing; it is an active process.

Relating perception to evolution, Gibson (1970: 99) defines perception as "extracting information from stimulation." However, stimulation is not only full of potential information; it is overful. There are limits to the information-processing capability of animals; they are subject to information overload (Miller, 1965). Perception is an active process, a search for information. A specific search may be terminated when there is sufficient reduction of uncertainity; but an organism also has need for stimulation

[1] Discussions with Charles W. N. Thompson have been helpful in the author's thinking about assertions, confidence, and truth. Laing (1960: 36) suggests that "sanity or psychosis is tested by the degree of conjunction or disjunction between two persons where the one is sane by common consent."

(cf. Bronson, 1968; Butler, 1954; P. Solomon et al., 1961).
Thus, there is a constant dialectic: search and termination, uncertainity and its reduction, drive and satisfaction, figure and ground; for a host of factors influence the organism's selection mechanisms of perception.

The influence of environment on visual perception has been shown by Segal, Campbell, and Herskovits (1966). This cross-cultural study found that experience with two-dimensional representations of a three-dimensional reality, experience with the square corners characteristic of "carpentered-worlds," and experience with broad, horizontal vistas had an appreciable effect on subjects' perceptions of various optical illusions.

Not only does his physical environment condition man's learnings; his social environment can also have an appreciable effect. Commenting on Asch's (1955) classic experiments in conformity, Campbell (1961: 108) states that

> in many instances, certainly, so called "conformity" behavior is an intelligent part of a rational search for valid knowledge about a fallibly and indirectly known world rather than merely an interest in being like other persons whether or not they are correct.

Miller (1969) has reported experiments where the autonomic nervous system can be conditioned, that visceral and glandular responses can be learned (cf. Katkin & Murray, 1968). Using a cognitive dissonance framework, Zimbardo (1966, 1967) has been able to show that even such basic drives as thirst and pain are not "absolute," but can be "perceived or felt" in differing ways. He has shown that not only subjective measures of pain, for example, are subject to cognitive control, but that objective measures such as learning performance, galvanic skin resistance, and basal skin resistance are also influenced.[2]

If even such "objective" stimulations as images of drawings, visceral responses, and pain can be perceived in differing ways, it could be expected that more complex and ambiguous stimuli would also be subject to such "subjective" perception.

[2]Zimbardo notes (1967) that cognitive dissonance theory is a face saving theory: that it operates only for those who cannot admit making a mistake when free choice exists. American culture seems most appropriate for cognitive dissonance theory. Hsu (1963: 224) notes that "in contrast to the two Asian societies [China and India], the dynamism of the American society is particularly aided by its ideal of complete freedom of the individual.

One of the most complex and ambiguous sources of stimulation in man's world is other men. Argyris (1969) presents a position that even what the professionals, the psychologists, perceive as basic human nature is not an absolute but is conditioned by their own learning, adaptation, and expectations (cf. Collier, 1968; Sarachek, 1968).

As an open systems viewpoint would lead one to believe, and as the work of Argyris, Campbell, and Zimbardo affirms, reality is not a fixed entity, but is subject to the interpretations of it that men make.

This notion of "subjective reality" is essential to a consideration of man and his effectiveness: for himself and for his work organization. Man differs much from the Newtonian mechanistic clockwork model. Man can, and does, influence his environment, which includes other men. It is not a question of whether he should or should not exert such influence: he does. It is rather a question of whether he can use his influence to help achieve his goals.

There is a substantial literature concerned with the perception of other persons (e.g., Berlew, 1961; Burke & Bennis, 1961; Cantril, 1957; Goffman, 1959; Heider, 1965; Newcomb, 1956; Steiner, 1955). This literature is concerned with how an individual attributes motives, values, and beliefs to another, and how these attributions in turn influence the behavior of both (Maselli & Altrocchi, 1969).

Such attributions can have an extremely strong and subtle effect. Research subjects are often influences by their preconceptions and suspicions (Schultz, 1969). Double-blind research designs are a control against the experimenter's influence, often unconscious, on his subjects and their behavior (Barber & Silver, 1968). Rosenthal and Jacobson (1968) have documented how teacher's expectations can influence student learning; Livingston (1969) has commented on the effect of managerial expectations on subordinates' performance and development. Zalkind and Costello (1962: 234) have reviewed the effects of interpersonal perception on administrative behavior, and suggest that effective administration is encouraged if the administrator is aware of the intricacies of the perceptual process and has an accurate self-perception. In all these examples, the expectations of the researcher, the teacher, and the manager influence their perceptions and the behaviors of the subject, the student, and the subordinate.

Besides influencing his environment, man is adaptive--he learns. The child learns from his genetic coding, his family, his formal educators, and his friends. As an adult, he is further socialized by his associates at work and by his interactions with others. This learning may be considered to be composed of two parts: that which was true of a unique situation and that which is generally true for all similar situations.

In a world which changes slowly, a person can generally rely on his learnings of yesterday to be valid today. In a world which changes rapidly (Bennis, 1966) this is no longer true. The walls of the maze run yesterday may have moved today; more effective procedures for achieving the same results may have been discovered; the goals themselves may have been altered; and new individuals may occupy old positions and roles. But to be aware of the changes around him, man must interact with the new situation and he must be open to perceiving it as it is, rather than as he expected it to be. In a changing environment, to be most effective man must test his conception of reality against the reality that exists in the now. Thus again, it is not a question of whether or not man learns, it is one of whether or not he learns correctly--whether his model of the world corresponds, to a good enough degree, to actual reality.

Reality-testing can help man become personally more effective. Section 2.02 indicated that an individual develops programs of behavior and cause-effect beliefs. He uses these to help fulfill his basic needs and derivative goals. However, derivative goals can drift away from relating to basic needs and what were once causes can cease to have their intended effects. Testing actions to see if they have their desired results and testing old goals to see if they still have personal value can help an individual to be a more fully functioning person (Rogers, 1957).

2.07 Communication

The communication process may be considered to consist of three parts (Weaver, 1949): energy, meaning, and action. The first requiste for communication is the transmission of energy. A broken wire stops the electric current from flowing in a telephone circuit; machinery noise prevents a shout from being heard; poor printing prevents understanding a letter. These examples show man as a rather passive receiver in the communication process.

Man also exercises an active role in communicating. He can move his seat to obtain a better view of a drama; he can shut his eyes to miss the disturbing parts of a film. These are conscious and intentional influences on the transmission of energy. In addition, man controls the information he is exposed to by nonconscious means. Because of proximity, habit, and preference, an individual develops systematic biases and selective exposure to information sources (Freedman & Sears, 1965).

Some of the problems of implementing the action phase of a communication were discussed as organizational change in section 2.03. Additional questions of action and implementation will be discussed with decision-making in section 2.08, and in section 2.10 with issues of organizational development. For now, it may be stated that a communication is intended to achieve some result, and the communication is not complete if the result or action does not occur.

Much research has been directed at the second element of the communication process: the transmission of meaning. The protean nature of man's perceptions, of both objects and social situations, was discussed in section 2.06. The remainder of this present section will review additional findings concerned with the transmission of meaning and focused on the role of trust in communications. The general problem of communication accuracy has been recently reviewed by Mehrabian and Reed (1968).

In a world of conflicting and partial information, what and whom one believes is important (cf. Simons, Berkowitz, & Mayer, 1970). Also, feedback processes, if open and honest, may improve information; while biased feedback may lead to false information and poor decisions. Mellinger (1956: 309) found that a communicator who lacks trust in the recipient of his communication tends to be motivated to conceal his own attitudes, resulting in communications which are evasive, compliant, or aggressive.

Defensive behavior may be defined as an act which is "motivated, in substantial part, by an individual's need to preserve a stable perception of the self or the defend the self from perceived attack or potential attack" (Gibb, 1961a: 67). In his analysis of small group interactions, Gibb (1961b: 142) found that defensive behavior was correlated positively with losses in communication efficiency: the receiver would read into communications projections of his own anxieties. Conversely, the more supportative the climate, the better the communication: the receiver would be better able to focus on the structure, content, and meaning of the messages.

This problem of defensiveness is not limited to laboratory small group interaction. As Gibb further comments (1961b: 143), "speech is so frequently judgmental that there is a reality base for the defensive interpretations which are so common."

Non-judgmental interaction has been a central part of Rogers's client-centered therapy. He sees (1952) the evaluative tendency as the major barrier to communication. This tendency, and thus the barrier, is heightened in emotional situations. Real communication occurs when one sees the other's idea or attitude from his point of view. However, such understanding is often avoided, for it is risky: the risk is the possibility of being influenced, of being changed. Change is not always a threat, but it may be. If an individual trusts the other, he is more likely to remain open to understanding him; if he does not trust him, defensiveness, evaluation, and miscommunication are probable results.

In his review of studies of ethos and source credibility, Giffin (1967: 104) found support for "the hypothesis that interpersonal trust is based upon a listener's perceptions of a speaker's expertness, reliability, intentions, activeness, personal attractiveness, and the majority opinion of the listener's associates." In addition to these attributes, trust and nondefensiveness can be based on the nondefensive behavior of the other.

As previously discussed, Gibb and Rogers have found that nondefensiveness or openness on the part of one individual encouraged openness in the other. In their study of superior-subordinate communications in a large public utility, Burke and Wilcox (1969) found support for this reciprocal relation. In addition, they found that greater openness by one or both members of the dyad was associated with increased work satisfaction.

Read (1962) found a negative relationship between upward mobility aspirations of subordinates and the accuracy of their communication of work-related problems to their immediate superior. In addition, this relationship was strengthened when the subordinate perceived his superior as highly influential concerning the subordinate's career, and when the subordinate had low trust in his superior. However, perceived influence was dominant over trust: the highly ambitious would distort information even if he trusted his superior.

Improving awareness and communication skills has been a persistent goal over many years of evolving experimentation with sensitivity training. In addition, sensitivity training has tried to foster climates of trust and openness. Although also influenced by several other factors, in general sensitivity training does achieve these goals for many of the participants, at least within the T-group (Durham, Gibb, & Knowles, 1967; Gibb, 1970; Harrison, 1967; Stock, 1964). Transfer to other situations is more conditional, but can occur under favorable circumstances (Argyris, 1968a; Buchanan, 1969; Campbell & Dunnette, 1968; Dunnette & Campbell, 1968; House, 1967, 1968; Patten, 1969; Schein & Bennis, 1965). This problem of transfer is further discussed in section 2.10.

2.08 Decision-making

The decision-making model used in section 2.02 for the analysis of individual behavior had four parts: a) the objective state of the universe; b) the individual's preconscious coding of the universe; c) his conscious coding, and d) his selection mechanism. In applying this model to organizational decision-making, or to any question of effectiveness, a fifth phase is necessary: e) implementation of the decision.

A decision can be defined as "any conceptually held statement of change between two sets of conditions" (Thompson, 1956: 64). Practical human decision-making involves a choice or selection of one behavioral alternative from a group of such alternatives (Tannenbaum & Massarik, 1950). There has been significant research on all five segments of the decision-making model.

A major effect on decisions is the mediation of the alternatives, consequences, and probabilities of various behaviors from the objective state of the world to the perceptions of the individual decision-maker. Some of the literature relevant to the first three phases of the decision-making model has been reviewed in sections 2.06 (Perception) and 2.07 (Communication). The fourth phase, selection, has received attention in the literatures of game theory (Boyle & Bonacich, 1970; Feldman & Kanter, 1965; Gallo & McClintock, 1965; Luce & Raiffa, 1957; McDonald, 1950; Rapoport, 1963; Rapoport & Chammah, 1965; Taylor, 1965; Vinacke, 1969; Williams, 1954) and simulation (Cohen & Cyert, 1965; Guetzkow, Alger, Brody, Noel, & Snyder, 1963). The implementation phase has been a concern of many organization theorists (see section 2.03). This present section will elaborate on the research on decision-making, and on the influence of trust and openness in decision-making.

Game theory. Game theory deals with "those decision situations in which the decision-maker has an opponent--in which his choice of action is contingent upon what one or more other decision-makers do" (Taylor, 1965: 54). This "opponent" need not be a specific individual; it may be an organization, the stock market, or nature itself.

Traditional game theory and decision-making theories deal with closed systems.[1] They do not consider systems, that is games, in which there is a

[1] A closed system is one in which no information, energy, or mass can transfer across the boundary into or from the environment. A system for which such transfer can occur is an open system. For further discussions of open systems, see the General Systems literature, for example, von Bertalanffy, 1956, 1962; Buckley, 1968.

continuing involvement by the players (cf. Shubik, 1963). Usually the game is one play long, sometimes the game lasts a known number of plays or until a specific goal is won.

Noel (1963: 101) has noted that game culture--the set of predispositions which develop out of the shared experiences of the game itself--takes time to appear. Guetzkow (1964: 271f) has said that the participants in the Inter-Nation Simulation did get emotionally involved in their game, but this simulation is much more complex and takes much more time than do the games of traditional game theorists. Also, in contrast to the studies of the traditional game theorists, there is no intrinsic solution to the Inter-Nation Simulation; the players define their own goals.

Thus, in traditional games, the results of one game do not influence the next game; there is no next game. In these non-cyclic, closed-system games, a mathematical morality, or at least frugality,develops: "the sensible object of the player is to gain as much from the game as he can, safely, in the face of a skillful opponent who is pursuing an antithetical goal" (Williams, 1954: 23). The best strategy to achieve this safe maximum is the minimax principle: minimize your maximum possible loss. The minimax strategy minimizes the variance in the game, and is the best strategy that can be followed in non-cyclic, competitive, closed-system games in which the players have no influence on the payoff matrix, that is, no influence on the alternatives or their consequences.

Schelling (1960) makes some advance in game theory by considering non-zero-sum games in which there is mutual dependence among the players. But still, the game theory model considers decisions under certainity, or at best, under risk. Most interesting decisions occur under uncertainity.[2a] In reality, man is not a passive captive of "the game;" he is an active player, referee, and rulemaker.

[2a]"Decision under certainity is that in which not only the alternatives in the choice to be made are known, but also each alternative is known invariably to lead to a specific outcome. Decision under risk is that in which the alternatives are known and in which each alternative leads to one of a set of possible outcomes, each outcome occuring with a known probability. Decision under uncertainity is that in which probabilities of specific outcomes are unknown, or perhaps not even meaningful" (Taylor, 1965: 50).

Man differs much from the Newtonian mechanistic clockwork model. Man can, and does, influence his environment, which includes other men. It is not a question of whether he should or should not exert such influence: he does. It is rather a question of whether he can use his influence to help achieve his goals.

Besides influencing his environment, man is adaptive--he learns. Again, it is not a question of whether or not man learns, it is one of whether or not he learns correctly--whether his model of the world corresponds, to a good enough degree, to actual reality.

If a man learns poorly, he may be able degenerately to influence his environment so that it more closely resembles his poor model of it. These actions are sometimes termed self-fulfilling prophecies. But man can also have a "good" model of the world, and he can influence his environment to make it better.

Thus, man differs from mechanistic systems in that he can elicit responses from his environment, including other men, and he can learn from his experiences. Because of his eliciting and learning capabilities, man can sometimes do better than a minimzx strategy--minimizing his maximum possible loss--would allow. By learning from his experiences, he can realize a long-term gain, even from a short-term loss. Commenting on the natural process of development in organizations, Blau and Scott (1962: 250f) state that

> problems appear, and while the process of solving them tends to give rise to new problems, learning has occured which influences how the new challenges are met.. Consequently, effectiveness in an organization /can improve/ as a result of accumulated experience.

Also, by eliciting certain behaviors from his environment, especially from other people, one can alter the set of alternatives, consequences, and probabilities of various courses of action.

Morton Deutsch and his colleagues have done extensive research with one such situation. They have developed games which investigate the effects of trust and suspicion on decision-making.

> There are social situations which, in a sense, do not allow the possibility of "rational" individual behavior as long as the conditions for mutual trust do not exist. ...Mutual trust can occur even under circumstances where the people involved are overtly unconcerned with each other's welfare, provided that the characteristics of the situation are such as to lead one to expect one's trust to be fulfilled (Deutsch, 1958: 278f).

Two of Deutsch's (1958: 268f) early hypotheses assert that:

> (a) As the individual's confidence that his trust will be fulfilled is increased, the probability of his engaging in trusting behavior will be increased and (b) as the ratio of anticipated positive to anticipated negative motivational consequences increases, the probability of his engaging in trusting behavior will be increased.

These two hypotheses may be related to an extention of Homans's (1961) general social interaction model. Using constant coefficient, linear differential equations, Simon (1954) derives his "Berlitz" model from a consideration of the problems of motivation and language learning. The correspondence among the Berlitz (b), Homans (h), and Deutsch (d) models can be seen in their principal variables:

T_b= amount of time spent in language learning per day
T_h= intensity of interaction or communication among a group
T_d= trusting behavior

I_b= pleasantness of learning
I_h= amount of friendliness or group identification
I_d= confidence that trust will be fulfilled

W_b= ease of learning
W_h= total amount of activity of a group member
W_d= ratio of anticipated motivational consequences

The similarities among the mathematical Berlitz model, Homans's general social interaction model, and a model based on Deutsch's trust hypotheses do not prove that any of the three is correct. However, the multiple convergence does give added support to each.

From his studies, Deutsch (1962: 316) finds that

> in the initiation of cooperation, the problem of trust and the bargaining problem are much easier to resolve if the potential cooperators are interested in each other's welfare. The development of a mutual interest in one another's welfare is, in turn, fostered by the experience of successful cooperation.

He finds that expectation, intention, retaliation, and absolution are key elements in a stable cooperative system (1958: 273). These, in turn, may be related to problems of threat and yielding.

> The introduction of threat into a bargaining situation affects the meaning of yielding. ...The cultural interpretation of yielding (to a peer or subordinate) under duress, as compared to giving in without duress /is different./ ...The locus of causality is perceived to be outside the voluntary control of the individual (Deutsch & Krauss, 1962: 74).

Loomis (1959: 305) in his work with games of trust, found four conditions as essential for the establishment of a cooperative relationship based on trust.

> First of all each individual must be committed to reaching some goal where the commitment is such that failure to achieve the goal would cost him more than he would be willing to risk in an uncertain venture. Secondly, each individual must know that he cannot reach the goal without the help of other persons, and that they are able to help him. Thirdly, each individual must know that the other persons are similarly dependent upon him for their rewards. ...Forthly, each individual must know that the others are each aware that the members are all mutually interdependent; in other words, there must be mutually perceived promotive interdependence.

The effects of different individual motivations in games were investigated by Solomon (1960: 230). He defined a conditionally cooperative strategy as one where the first player makes a cooperative choice on the first trial. However, for each succeeding trial, the choice of the first player is reciprocal to that of the second player: the first player makes a cooperative choice only when he receives one from the other player. Solomon found that

> a conditionally cooperative strategy is most likely to facilitate the transformation of an individualistic to a cooperative orientation, particularly under conditions where there is a high degree of mutual interdependence.

Terhune and Firestone (1966, 1967) have studied the relation of personality and group motives to cooperation and conflict using a Prisoner's Dilemma game and the Princeton Internation Game.[2b] Based on McClelland's (1961) typology, they define three motives in which only one motive is dominant:

> Naff (abbreviation of need for affiliation): a person above the median on need for affiliation, below the median in the other two.
>
> Napo (need for power): a person above the median on need for power, below on the other two.
>
> Nach (need for achievement): a person above the median on need for achievement, below the median on the other two needs.

From their results with the Prisoner's Dilemma game, Terhune and Firestone (1966: 40) found that

> Naches are interpersonally neutral risk-takers, motivated by a self-interest, and desiring to conform to a standard of excellence. Naffs are interpersonally positive, desire friendship with others, but are highly defensive. Nepos are interpersonally negative and strive for control over others.

The difference between individual behavior and group behavior may be seen by comparing these results with those obtained from the Princeton Internation Game (1967: 90):

[2b]The Prisoner's Dilemma is a situation in which both "players" have dominant incentives to choose strategies that together yield both a less desirable outcome than if both had made opposite choices (Schelling, 1960: 214). The Princeton Internation Game is a human simulation of international relations.

> It appears that Nach groups are cooperatively disposed, but that their choice of goals may lead them into conflict. Naff groups desire friendly relations, but their withdrawl tendencies lead them to both minimal cooperation and minimal conflict. Nepo groups are oriented toward controlling others, which gives them a strong potential for conflict, though they may, through subtle exploitation, find outlets for their power needs in cooperation as well.

In the group game, the more complex environment allowed the naffs to withdrawl, an alternative not available to them in the Prisoner's Dilemna games, and allowed the nachs and nepos a choice of goals and of means to reach these goals.

Since Deutsch's experiments on trust, there have been a series of other investigations using the Prisoner's Dilemna and similar games to study trust (Behavioral Science, passim; Dissertation Abstracts, passim). However, as illustrated by the findings of Terhune and Firestone, there are difficulties in generalizing even from dyadic to group laboratory games (cf. Nemeth, 1970). Although simulations may be closer to the "reality" to which the research findings aim their generalizations, the external validity of any simulation must be systematically examined (Guetzkow, 1968; Hermann, 1967). Two critical differences between laboratory studies and day-to-day life are the time perspectives and levels or risk involved (Shubik, 1963; Weick, 1965).

The research subject does not live in the laboratory: his major goals reside outside. While people do get involved playing an afternoon game for "Monopoly money," there are some behaviors that will not be elicited in normal individuals unless the stakes are higher and the effects of the game longer lasting. Risks involving one's career, thousands of real dollars, or another's physical and mental health are difficult to ethically simulate in the laboratory; they occur not infrequently in the "real world." As Simon (1959: 266) has succinctly stated, "while game theory has greatly clarified the issues involved, it has not provided satisfactory solutions."

To help resolve this difficulty, studies of decision-making have been done in ongoing organizations.[3] Although a few organization theorists explicitly consider trust as a central variable (e.g., Argyris, 1965; Bennis, 1966;

[3]Of course, there are trade-offs to such a benefit. The researcher is limited to situations as they exist, and cannot readily replicate or create "alternative futures." Also, there will be many influencing factors which cannot be controlled. Difficulties of validity can be reduced from, for example, the case study design, by using quasi-experimental, natural experimental, and true experimental designs (Campbell & Stanley, 1963).

Crozier, 1964), the issues of trust and openness are found in most studies of individual and organizational behavior only implicitly. Two subliteratures in organizational decision-making quite related to trust are those of participative decision-making and studies of organizational conflict.[4]

Participative decision-making. Participative decision-making may be broadly conceived as a mode of organizational operations in which decisions are arrived at by the persons who are affected, or feel they are affected, by them (after Lowin, 1968: 69). The organizational operations may involve the perception and communication of the need for a decision, the generation of alternatives and consequences, and the final selection. As Tannenbaum and Massarik (1950: 410) note, subordinates can participate in the first two of these steps; only the superior can make the final selection. However, with democratic group operations, there is no "superior," at least within the confines of the democratically defined group, and the group may participate in all stages of the decision-making process.

One trust issue in participative decision-making is that of suffrage. For an administrative superior to reasonably relinquish some of his control to his subordinates or peers directly implies some trust of them, since he is increasing their possible influence over his work environment and over himself (cf. Lundstedt, 1966). Lowin (1968: 75f) lists the potentials of increased organizational performance, improved technical and administrative systems, public pressures for subordinates to conform to prior commitments, and greater goal commonality as motives contributing to manager acceptance of participative decision-making. He finds ego motivation, financial incentives, and closure and the sense of participation as contributing subordinate motives. In sum, for both superiors and subordinates to leave the traditional hierarchical decision-making procedures for those of participation, they must feel that they will better achieve their goals.

[4]There is also a substantial decision-making literature in political science. Snyder has provided a general statement of the relevance of game theory (1955) and decision-making (1958) to the study of political phenomena; Snyder and Robinson (n.d.) give a comprehensive report of completed and needed studies in national and international decision-making.

Decision-making studies in other areas of political science have also been made. For example, Schubert (1958) has analyzed judicial behavior; Feldman & Kanter (1965: 643) inventory community decision-making studies; and Angus Campbell, Converse, Miller, & Stokes (1960) report on their research on the American voter.

After participatory decision-making is introduced into an organization, the formal suffrage patterns may be more the dependent variable than the independent. Both superiors and subordinates are likely to adapt their communication and decision-making patterns depending on their motive satisfaction. For example, if subordinates' perception of the need for a decision are often denied, if subordinates do not receive timely feedback on their suggestions, or if they feel they do not receive proper credit for their contributions to decision-making, they are likely to withdrawl to the traditional, hierarchical, passive role. Likewise, if the superior feels that his subordinates are ineffective or uninterested, he is not likely to facilitate their participation. And if the manager tries to increase his status or security by keeping significant information from his subordinates, their potential contributions are rendered less effective. Thus, it is not so much the formal statement by management that participatory decision-making will be employed that will determine the behavior of managers and subordinates; it is the ongoing behavior of each that contributes to the establishment of dyadic equilibrum (cf. Heller & Yukl, 1969).

For participatory decision-making to work, superiors must be open to communications from their subordinates. They must admit that others may be more aware of some of the proper questions, and that others may be better prepared to consider alternative answers. And subordinates must trust their superior to not punish, consciously or unconsciously, them for questioning his omnipotence, omniknowledge, and omnipresence; in short, for questioning the traditional, beaucratic, hierarchical values.

Based on his review of the literature (include experimental studies in nonorganizational settings, observational studies in organizations, and experimental studies in organizations), Lowin (1968) proposes several hypotheses concerning the effectiveness of participative decision-making. Some of these hypotheses find the effectiveness of participative decision-making to vary directly with the number of administrative levels subsumed by the program and directly with the amount of useful information available exclusively to the subordinate. Effective participative decision-making is seen to vary inversely with the amount of useful information not available to the subordinate, with the urgency of decisions, with the extent to which subordinates can exert no control over productivity (for example, in some machine-paced operations), and with the degree of coupling of financial rewards with participative decicion-making activities, provided that financial motives are important.

In light of these hypotheses, it can be useful to examine decision-making in research and development laboratories. Traditionally, decision-making has been considered a managerial function separate from the function of the operatives of the organization (e.g., Simon, 1944). In this view, the operatives do the work--turn the lathes, shovel coal, fire rifles--and the administration, through its decisions, influences the operatives' behavior. But research is itself a sequential decision-making process, and the function of organizational R&D is to find scientific knowledge which will be useful to the organization under the environmental conditions with the greatest expected value. Thus, in an R&D lab, or any organization where the final product can be considered as a decision, decision-making is a double purpose model: it can productively be applied to both administrative and operative behavior.

Project selection in R&D is an activity that embraces much of the R&D function and to which the decision-making model readily applied (POMORAD, 1966, 1967, 1970). It is through project selection that the R&D technology--that is, the research process--is applied to an initial idea, thus increasing the probability that the idea will lead to knowledge and products useful to the organization. General phases in the idea flow and project selection process include idea generation, preliminary discussion, revision, formal proposal, initial formal screening, economic evaluation, other evaluations, decision to enter into the portfolio, decision to dund, personnel assignment, in-progress reviews, periodic reviews, and final review.

Many of these project selection decisions are not urgent ones. Project portfolios and budgets are often formally prepared with a year's lead time; a specific research project can take several months or several years. Also, the researcher can exert a great deal of control over his productivity, at least in the intermediate sense. Although he cannot guarantee a solution to his problem, he can work harder and longer at it, including working or thinking when he is not on "company time." Since much of the research process occurs within the researcher's head, in addition to these conscious behaviors, his unconscious motivations exert additional control over his productivity.

The administrative subordinate--that is, the researcher--has a great deal of information available exclusively to him. It is he who has direct experience with his research project. While he can, and often is required to, report on his research to management, there can be wide individual differences in the frequency, detail, and completeness of such reports. In addition, such reports are general. For any specific decision, the requisite information may not be in the report but may reside with the researcher.

These factors--nonurgency, control over productivity, and exclusive information of the subordinate--all indicate that participative decision-making could be effective in a R&D lab. Of course, other factors still operate, and also influence potential effectiveness. If the general climate of the laboratory is permeated by traditional hierarchical or pyramidal values (Argyris, 1965, 1966), then participative decision-making in one group or section of the lab will be less effective. Also, important information such as company-wide priorities, long-range goals and marketing plans, and proprietary and confidential information may not be directly available to researchers, but only to their superiors. For researchers to make less suboptimal decisions, they need to know the goals, values, and some data of other organizational entities--other entities competing for the organization's scarce resources.

Conflict. As with decision-making, there is an extensive literature pertaining to social conflict (e.g., Journal of Conflict Resolution, passim; Mack & Snyder, 1957; Pondy, 1967, 1969; Walton & Dutton, 1969; Wolfgang, 1966). This literature will not be reviewed here, but the relation of trust and openness to conflict will be discussed.

Conflict is inevitable in organizational affairs.[5] Even if there were agreement as to goals among cooperating individuals and groups, resource constraints will create conflict in priorities and means. In addition, due to their individual differences in genetic coding, early learning experiences, resultant personalities, and current situations, people will vary in their values and perceptions. March and Simon (1958: 121) find such differences in goals or in perceptions of reality to contribute to intergroup conflict, provided there is a felt need for joint decision-making. The division of labor and specialization found in organizations will create some needs for joint decision-making. They will also create group subgoals and vested interests.

[5]All conflicts are not inherently destructive. Deustch (1969: 10) distinguishes between destructive and productive conflict. A conflict "clearly has destructive consequences if the participants in it are dissatisfied with the outcomes and all feel they have lost as a result of the conflict." If they are satisfied and feel they have gained, the conflict is productive. Destructive conflicts tend to expand and escalate. They invoke competitive strategies, misperception, lack of communication, and excessive tension, which "reduces the intellectual resources available for discovering new ways of coping with a problem or new ideas for resolving a conflict" (at 15). Productive conflict may be seen in individual creative thinking and, at the social level, in cooperative group problem-solving.

These factors, together with the organization's attempts to adapt to its changing environment, will produce conflicting demands and ambiguous requirements for behavior (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964).

There are two major reactions to conflict: open attempts at solution or defensive attempts at avoidance. As Kahn et al. document, defensive avoidance of the core problem often results in derivative problems, and vicious cycles can result. They further suggest (at 389) that to promote organizational effectiveness, "each member of an organization should have the legitimate authority to convene the members of his role set to reach understanding and agreement ...."[6]

As discussed in several sections above, such open attempts at conflict resolution necessitate trust. In most organizations, especially those with pyrimidal values, there are strong norms against admitting the need for help and against questionning traditional authority--i.e., authority of position rather than authority of knowledge and skill. Further, true attempts at conflict resolution, as differentiated from "winning the disagreement," open the individual or group to the possibility of external influence and change. The parties in the conflict must have faith that they will not suffer undue harm in the short-run and that in the long-run their needs and goals will, on the average, be met as often as those of their peers.

Homans, (1961: 232) has formulated a law of distributive justice:

> A man in an exchange relation with another will expect that the rewards of each man be proportional to his costs ... and that the net rewards, or profits, of each man be proportional to his investments ....

To the extent that a man feels that distributive justice is not being met, he will display anger or guilt, depending on whether the failure is to his disadvantage or his advantage.

One problem wi th distributive justice is that rewards, costs, and investments are all subjectively valued: one man's conception of his investments may differ from another's perception of them. If these differing

[6]In his review of marriage research and conflict, Barry (1970: 48) reports studies finding less residual hostility when subjects "are allowed to communicate their hostility toward the instigator of their frustration." Also, "the more hostility is repressed the more dangerous is the conflict when it breaks out." Cf. Thibaut & Coules, 1952.

evaluations can be brought out into the open, it may be possible to reassess investments and to decrease conflict. (But there are some social functions provided by non-explicitness and ignorance, cf. Moore & Tumin, 1949.)

Conflict situations may be perceived as win-lose, zero-sum games, or they may be seen as non-zero-sum games providing the opportunity for interacting individuals and groups to help one another contribute to the overall goals of the organization, while causing minimal interference with each entity's own idiosyncratic subgoals. If mistrust is prevalent, intra- and intergroup hostility and fighting can result, with defensive, closed positions, limited and distorted communications, and suboptimal decision-making. But if individuals and groups trust one another, they are more likely to engage in the kind of open problem solving that can increase the overall benefits to all.

2.09 Creativity and control

Some lore has it that all one need do to have an effective R&D organization is to find technically competent scientists, equip them with their testtubes and other tinkertoy apparatus, and leave them alone until they discover nylon, atomic energy, the transistor, or nutritionless food. Organized research is not quite so simple. Three significant parameters influencing the relation between the research conducted in the laboratory and the lab's effectiveness are a) the scientist's motivation, b) his creativity, and c) the laboratory's control mechanisms.

Motivation. March and Simon (1958: 48) consider a member of an organization to make two important decisions: a) the decision whether to participate in the organization and b) the decision whether to produce at an "appropriate" level. This appropriate level may be that demanded by the organizational hierarchy, by the work group, by some industry-wide peer group, or by the individual himself. They also note that "present satisfactions are often less important in influencing human behavior than perceived relations between present alternatives and future states."

These propositions may be related to professionals in intellectual industries, and specifically to those in research and development.[1] An intellectual industry is one concerned primarily with the manipulation of abstract concepts or ideas; such an industry may be contrasted with one which manipulates physical objects. The idea may be held by a human, but if the manipulation is primarily on the idea (as in education) rather than on the person (as in medicine), then the industry may be termed intellectual. Two prominent intellectual industries are research and education.

Intellectual industries may be seen as a subset of "intensive technologies." In contrast with other technologies such as the "long-linked" and the "mediating," it is more difficult for the intensive technology to seal itself off from

[1] Stinchcombe (1965: 162) finds that the entire nature of "labor" is changing; it is increasingly the "production, dissemination, and application of knowledge rather than energy." He further comments that "the system of rewards and punishments appropriate for maximizing the amount of knowledge and intelligence that will be applied in a work role are likely to be quite different from those appropriate for maximizing the amount of energy applied. In particular, the organization of work roles into a career is much more important, and the necessity for rewarding performance from minute to minute is less important."

uncertainities in its environment.[2] Thompson (1967: 40f) proposes that long-linked technologies seek to reduce uncertainity through vertical integration, mediating technologies through increasing the populations served, and intensive technologies through incorporating the object worked on. While incorporation of the object is possible in the construction industry and in medicine, such incorporation is difficult in an intellectual industry: the intellectual industry does not work directly with physical objects, but with ideas.

In education, the manipulation of ideas is governed by laws of learning. Unfortunately, all of the relevant parameters for these laws, and some of the laws themselves perhaps, are not known. In research however, even the degree of certainty present in education is absent. Research involves a deliberate attempt to innovate, and such innovation inherently involves uncertainty. Because of the inherent uncertainty in research, the measurement of productivity is more difficult and less absolute than in other industries.

In an industry where most of the laws and many of the relevant parameters governing production are known, the work of each individual may be measured against the theoretical production for his position (e.g., assembly-line work, typing, dishwashing, etc.). But where the theoretical production function is not known, an individual's production can only rationally be evaluated with reference to some average of his peer's work. This relativity of performance measure can influence the individual's decision both to participate and to produce.

Entry into an occupation in an intensive technology is usually through specialized training (Thompson, 1967: 112). This is especially true of intellectual industries, which characteristically involve "late-ceiling occupations"--that is, occupations in which the individual can find advancement until rather late in his career. Our society will have an increasing demand for professionals (Beckhard, 1969; Bell, 1967; section 2.11). While general fluctuations in economic conditions will influence this demand, many professionals will often be able to exercise some choice regarding their participation in one organization rather than another.

[2]A long-linked technology involves serial interdependence. A mediating technology involves the linking of clients or customers who are or wish to be interdependent. In an intensive technology, a variety of techniques is drawn upon in order to achieve a change in some specific object; but the selection, combination, and order of application are determined by feedback from the object itself. (Thompson, 1967: 15f)

But the professional will still have to decide at what level to produce. One may expect to find high levels of need for achievement among professionals (McClelland, 1961). To the extent that an employee has high need for achievement, he is likely to base his decision of level of production on his own abilities and is likely to produce at a high rate, considering his own capabilities. (The strength and direction of social pressure, as well as the employee's level of need for affiliation and need for power will also influence his production.)

Thompson (1967: 114) hypothesizes that "where the intensive technology employs late-ceiling occupations (professionals), the inducements/contributions bargain rests on the individual's visibility among occupational colleagues." One may expect that in the near future the highly qualified professional will have little trouble in obtaining employment, will produce at near his maximum making his high skill level visible, and consequently will receive a favorable inducements/contributions bargain.

The less qualified professional has more problems. If he is high in need for achievement he should produce at near his maximum and should be willing to make visible his level of skill. (Again, social pressures are important additional influence.) However, the individual who has lower need for achievement, but high need for power, may not wish to be judged on the basis of his skill. This individual is much more likely to spend a sizable proportion of his effort at trying to appear comparatively better than other individuals. Part of this effort may be directed at his own productive work, but part of it is as liable to be directed at impeding the progress of others.

If the work environment is individually competitive, recognizing only relative contributions, there is little to induce the less qualified employee to devote his efforts primarily toward making those contributions of which he is able. However, if the work environment is democratically open (Bucklow, 1966) the absolute contribution of each individual is recognized. In this case, it is not solely the individual's level of production, but his level of production compared with some estimate of his total ability.

The Scanlon Plan (Krulee, 1955a, 1955b; Yoder, 1962), Bavelas's work (Whyte, 1955: chap. 10), and related group dynamics techniques may be seen as attempts to establish "democratic" environments for work groups. These techniques, as well as those of sensitivity training and organizational development (see sections 2.03 and 2.10) may be seen as methods to free the individual from inappropriate competitive fears and to enable him to produce at an individually appropriate level.

Creativity. Even if the researcher is motivated to direct his efforts at solving the technical problems, rather than directing significant portions of his energy toward defensive or inappropriately competitive behaviors, he must still have the technical competence to produce.

Laboratories have two major controls over the technical competence manifest by their members: selection of personnel and management of the organization. Creativity is generally considered an important component of the researcher's technical competence. Dellas and Gaier (1970: 68) have reviewed research on the identification of creativity in the individual. They find that "creative persons are distinguished more by interests, attitudes, and drives, than by intellectual abilities."

> The cognitive capacities that appear to be most frequently associated with the creative are an above-average intelligence and the effective use of this intelligence, the ability to produce unusual and appropriate ideas, an exceptional retention and more ready availability of life experiences, ideational fluency and the ability to synthesize remote or disparate ideas, discriminative observation, and a general cognitive flexibility.
>
> In the realm of personality, a clearly differentiating factor that characterizes the creative is the relative absence of impulse and imagery control by means of repression. This relative lack of self-defensiveness seems to accord to the creative fuller access to his conscious and unconscious experience, and therefore, a greater opportunity to combine dissociate items. An openness to internal and external stimuli is also indicated as a salient characteristic ....
>
> Although the creative appears to be subject to considerable psychic turbulence, ...the creative individual is possessed of superior ego strength and a positive constructive way of reacting to problems. ...Independence in attitudes and social behavior emerges with striking consistency as relevant to creativity.

Other researchers in creativity have arrived at similar findings (e.g., MacKinnon, 1967; Torrance, 1965).

However, a laboratory will not necessarily be effective even though its personnel are "creative" individuals.[3] More than novelty is needed (Jackson & Messick, 1965). What is needed are men with creative ideas that can economically be turned into marketable products.[4]

While studies on the identification of creative individuals can be of some aid in designing educational systems (Kagan, 1967) and in personnel selection, it is through the management of the organization that significant improvements in the laboratory's creativity may be fostered.[5]

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[3]Other personality characteristics also affect the researcher's effectiveness. Matussek (1962: 24) discusses the influence of personality on research planning. After describing four idealized clinical, but not abnormal, types (compulsive, depressive, hysterical, and schizoid), he concludes "that the multifariousness of personality structures is responsible for the fact that for a given assignment a particular personality type is best suited and for another a different one; that even a perfectly planned project can be impeded by one personality type and advanced by another." Besides the effect of personality on planning, Matussek is also concerned with the effect of planning on the individual. He finds that the more a researcher "can express the main springs of his personality the more he can be human in his work, the better will be his work."

Wainer & Rubin (1969: 178) and Schrage (1965) have studied the personality of R&D entrepreneurs. Wainer & Rubin found high need for achievement and moderate need for power associated with high company performance. Need for power and need for affiliation seemed to affect performance through their influence on leadership styles. They see their findings as casting doubt on some of Schrage's results.

Schrage found successful R&D entrepreneurs to be "high in achievement motivation, low in power motivation, and high in awareness of self, the market, and his employees" (at 64). However, quite unsuccessful entrepreneurs differed only in lacking awareness. This awareness included both accurate perception of others and self awareness, which was conceived as including awareness of one's impaired performance under stress and the ability to experience anxiety without debilitation.

[4]Vonnegut (1963: 17) characterizes a Nobel Prize winning scientist in his acceptance speech. "I stand before you now because I never stopped dawdling like an eight-year-old on a spring morning on his way to school. Anything can make me stop and look and wonder, and sometimes learn." However, this was a pure researcher, and "pure research men work on what fascinates them, not on what fascinates other people" (at 41). A parallel problem to creativity exists with the diffusion of innovations and the transfer of technology. In all these areas the critical elements of usefulness and implementation are often overlooked.

[5]The idea flow and info search projects of the Program of Research on the Management of Research and Development (POMRAD) at Northwestern University have been concerned both with the generation of ideas and organizational facilitators and barriers to their communication (POMRAD, 1966, 1967, 1970). At the University of Utah, Calvin Taylor has been associated with a program of research on creativity. See, for example, Ellison, McDonald, James, Fox, & Taylor (1968); Taylor (1956, 1969); and Taylor, Ghiselin, & Yagi (1967).

Laboratories generally already try to attract the most creative scientists and engineers they can; this resource pool is fairly inelastic to direct manipulation. But the management of a laboratory can try to create the kind of organizational climate that will permit more of the creativity that does exist within its members to be used. (In addition, such a climate may attract more creative personnel or may alienate them less frequently.)

Humanistic psychology (see section 2.02) would hold that most individuals are capable of creative acts, but are often inhibited by their own defensive mechanisms and by the social situations in which they live. Some research findings concur with this view.

Hall and Lawler (1969) gathered data from the directors of 117 R&D organizations and interviewed 291 researchers in 22 of the labs, all in Connecticut. They found several areas in which the human resources of the laboratories were underutilized. In addition, they found that the organizations exerted negative socialization; the labs were training out many of the creative qualities they said they desired.

Concerning motivation, Hall and Lawler (at 342) postulate that work can be intrinsically satisfying if three conditions for psychological success are met: a) the individual participates in setting his goals, b) he independently works out the means of attaining these goals, and c) the goals represent a truly challenging level of aspiration. These three elements are also seen as prerequisites for a proper integration of individual and organizational goals.

Generally, the Hall and Lawler results support those of Argyris (1965: 230f), who postulates a theory of the deterioration of research and development organizations. Even assuming that researchers are technically competent, Argyris sees their interpersonal competence as lower than that for members of other areas of the organization; this lower interpersonal competence will interfere with the researcher's effectiveness.[6] The relatively low interpersonal competence will lead to a lack of awareness and misperceptions in the laboratory, resulting in an organization increasingly tied up in defensive activity that no one wants or seems to be able to alter. Thus, both managers and researchers will come to behave in ways that tend to inhibit, dissatisfy, and frustrate one another. They do this because they are not interpersonally competent to do otherwise, because they do not know other ways of behaving.

[6]The higher the interpersonal competence of an individual, the greater is a) his awareness of relevant problems, b) his ability to solve problems in such a way that they remain solved, and c) the probability that the problem-solving process involved has not been harmed or negatively influenced (Argyris, 1965: 4).

One possible, but premature, conclusion from such studies is that R&D labs are overcontrolled. If researchers lack involvement and psychological success, let them determine their own research projects.[7] If they lack interpersonal competence, let them work on their own. However, this straw man is readily reduced.

Although individual research may be a useful mode for exploratory projects where specific goals cannot be outlined in advance, team research can increase the effectiveness of each member (Abelson, 1965). Also, many projects (for example, those in aero-space associated with NASA's space exploration) are too complex for any single individual. In addition, avoiding the problem of interpersonal incompetence also avoids the potential of increasing the laboratory's, and each individual's, resources; it is a suboptimal solution at best.

Interpersonal competence can be increased, and psychological success can be made more likely. Building on discussions in earlier sections of trust and openness, section 2.10 will include comments on increasing interpersonal competence. Section 2.08 discusses some of the issues involved in participative decision-making, but goal setting in an R&D lab involves more than letting the research set his own challenging goals. It involves the entire issue of control.

Control: theoretical orientations. Much of organizational behavior may be described as the flow of decision premises through a (spacial-temporal) network of uncertainity absorption.[8] Using an information-processing model, these decision premises may be seen as input to or as output from some organizational subsystem (individual, group, division, etc.). When considered

[7]A related issue is that of job enlargement. In their review of the literature, Hulin & Blood (1968) find the effectiveness of job enlargement to be dependent on the background of the workers. Ford and Borgatta (1970) have identified eight attitudinal dimensions of satisfaction with the work itself. Also, Porter, Alderfer, Lawler, & Hackman (1969) discuss the influence of task factors on job attitudes and behavior.

[8]"Uncertainity absorption takes place when inferences are drawn from a body of evidence and the inferences, instead of the evidence itself, are then communicated" (March & Simon, 1958: 165).

as input they may relate to objectives or to cause-effect relationship beliefs; when considered as output they may or may not be used in feedback control mechanisms.[9]

These three aspects of control--objectives, cause-effect beliefs, and feedback mechanisms--are central in a discussion of organization in an industrial research and development laboratory. These general aspects may be rephrased as questions of mission, method, and magic.[10] Thus, an extreme of non-autonomy[11] would involve another subsystem determining[12] for the focal subsystem all of the focal subsystem's objectives and cause-effect beliefs (prescribed roles may be included in this category) as well as the form and timing of the control portion of the output. The superior subsystem thus determines the entire characteristic equation for this focal subsystem:

[9]Note that often lower objectives are derived from higher objectives via cause-effect beliefs. In addition, often the flow from broad objectives to operating objectives passes through a network of uncertainity absorption. What is termed mission or method will depend on the level of analysis used; that in turn on the specific purpose of that specific analysis.

[10]Brooker (1967: 6) has defined magic as "those patterns of behavior in which conscious attempts are made to manipulate variables in the environment but which include no means of comparing results with intents in order to modify the manipulative behavior." Formal organizations, especially industrial organizations, and their subsystems are considered as definitely making conscious attempts to manipulate environmental variables, usually to result in survival and profit, as well as other states. While this oberall objective is broken down into smaller operating objectives, the connection with magic or science (briefly, adaptive behavior) still holds. Thus, "magic" questions which subsystems compare the focal subsystem output with objectives (cf. Brooker, 1967: 13).

The term "magic" is used for two reasons: it maintains the aliteration and it highlights the distinction between possible and actual feedback control. Alternatively, terms such as empiricism, accountability, or audit, could be used, although these terms emphasize the "science" end of the magic-science continuum.

[11]Using a tensor notation, control or non-autonomy can be seen as the relationship V(i,j,k,t), where V has values for objectives, cause-effect beliefs, and comparison feedback. If there is no V(i,k) relationship, then i can be considered autonomous, or autonomous within the restraints of j and t. However, to the extent that V(i,j,k,t) relationships exist, i is under some control.

[12]"Determine" is used when a subsystem makes something happen; "specify" is used when a subsystem tries to make something happen. A determined event will be implemented, a specified event may or may not be implemented.

input, transformation, output, and control loop.[13] Of course, the superior subsystem cannot determine all the objectives and beliefs of people, but it can specify these for the rational, behavior aspects of work which the individual will consider legitimate.[14] It should be noted that what a subsystem will regard as a legitimate directive is a variable factor affected by a complex of other variables.

At the other extreme, an autonomous subsystem would determine for itself its characteristic equation: it would form its own objectives, develop means to achieve these ends, and compare its output against its objectives to modify its own operations. This is not to say that such an autonomous subsystem is independent[15] of other subsystems. Although other subsystems may affect this autonomous focal subsystem (e.g., by altering the focal subsystem's environment), the control aspects of the focal subsystem (program and feedback) are self-determined.

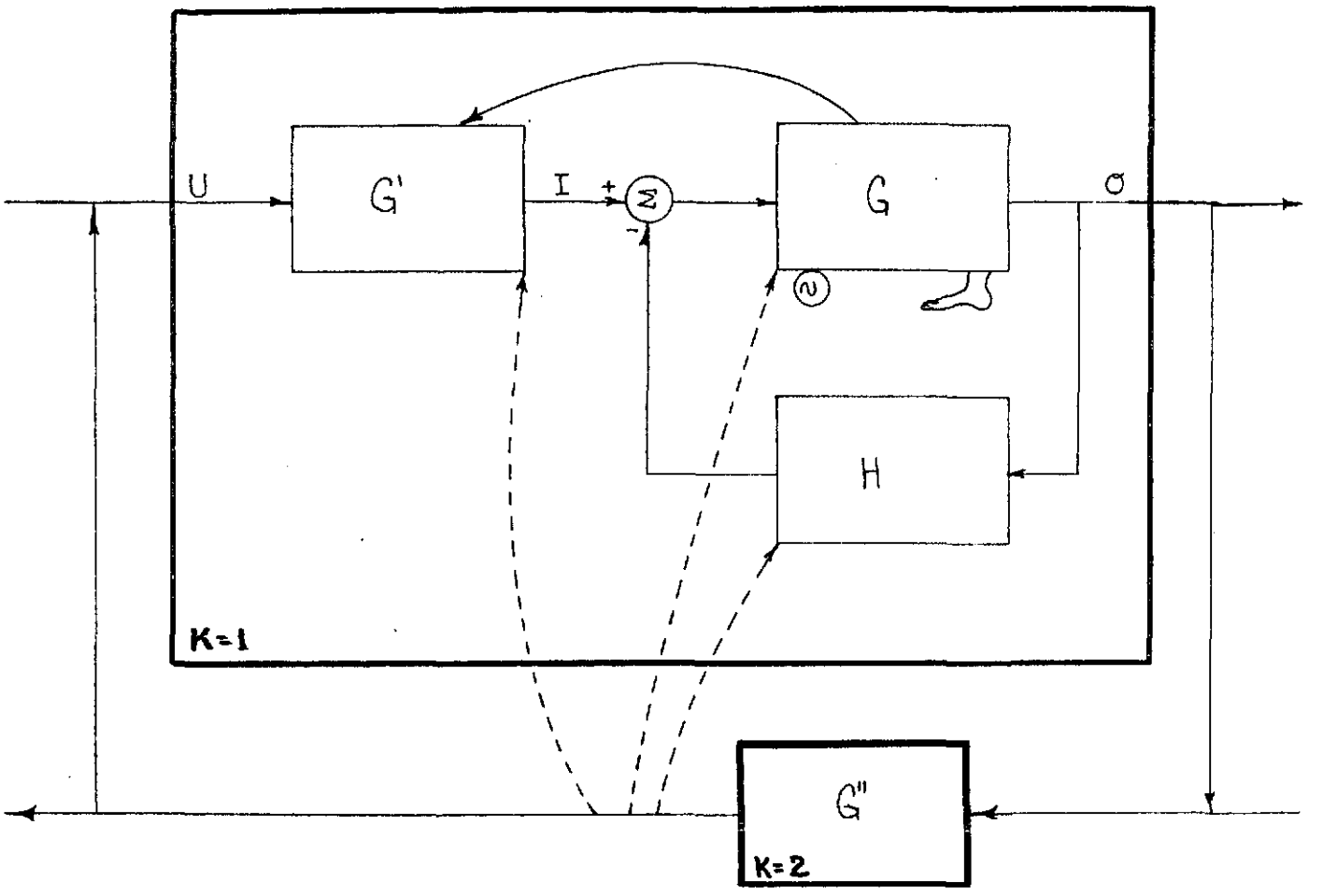
Figure 6 shows a general subsystem (entity k=1) and another subsystem (k=2) attempting to control the focal subsystem. In the focal subsystem, U is the universe as presented to the individual's preconscious; I is the individual's net input to consciousness; O is his behavior output; G is his characteristic equation; G' is his conscious transformation of total distal input; and H is an operator determining what part of his output is used to compare against proximal input (I) to determine if his objective has been reached. ⓦ indicates that the subsystem has an active energy source; the "foot" indicates that the subsystem can "move," and thus alter its distal input (U). Control determined by k=2 is shown by dotted lines; control specified by k=2 operates along with other influences in U. G' may be related to mission, G to method, and H to magic.

[13]A characteristic equation of a subsystem describes the output produced given an input. The terminology employed in this section and its diagram are consistent with formal cybernetic standards. (However, the "foot" in Figure 6 is a nonstandard symbol.) See, for example, Benjamin C. Kuo, Automatic Control Systems. Englewood Cliffs, N.J.: Prentice-Hall, 1962.

[14]Cf. Katz & Kahn's (1966: 204) discussion of the psychological contract members of organizations accept. A superior subsystem could also specify behavior, or even affect and perception, for which the individual does not grant legitimacy. In this case the specified behavior would not be determined, and likely would not occur.

[15]Charles F. Douds introduced me to Jacques (1956) notion of dependence, roughly measured by how long it will take for a change in another subsystem to affect the focal subsystem, and how strong the effect will be.

Figure 6. Components of a Generalized Subsystem (k=1), Showing It Under some Control of another Subsystem (k=2).



A general subsystem (entity k = 1) and another subsystem (k = 2) attempting to control the focal subsystem are shown. In the focal subsystem, U is the universe as presented to the individual's preconscious; I is the individual's net input to consciousness; O is his behavior output; G is his characteristic equation; G' is his conscious transformation of total distal input; and H is an operator determining what part of his output is used to compare against proximal input (I) to determine if his objective has been reached. ⓦ indicates that the subsystem has an active energy source; the "foot" indicates that the subsystem can "move," and thus alter its distal input (U). Control determined by k = 2 operates by dotted lines; control specified by k = 2 operates along with other influences in U.

The importance of these aspects of control (mission, method, and magic; or program and feedback) in organizational behavior need not be discussed at great length. Obviously, how the organization's subsystems are controlled will largely determine the adaptiveness and effectiveness of the organization.

Control and freedom in R&D. There is a basic tension in organizations between freedom and control (Blau & Scott, 1962: 242f). Thus, while free communication flow facilitates problem-solving and decision-making, it can hinder coordination. While a researcher is likely to be highly motivated for those projects he chooses himself, these projects may not contribute to the organization's effectiveness. The individual researcher, project group, and laboratory need freedom to involve themselves in their work, but they also need control to ensure that their work will contribute to the goals of the organization (cf. Hughes, 1968; Smith, 1970).

Based on the characteristics of organizations in general, of R&D labs in particular, and of the creative, innovative process, several patterns of effective control mechanisms can be postulated. These relations are not hypotheses to be tested in this study, but are indicated as potential points of leverage and change.

> For any subsystem, there are patterns of autonomy that are more effective than other patterns.[16]

A pattern of autonomy is the degree of autonomy the focal subsystem has in its network of interrelationships. It may be specified as a V(i,j,k,t) matrix, where V refers to the three factors of autonomy--mission, method, and magic. Thus, the relative specification and determination of program (means and methods) by R&D or by manufacturing, marketing, and top management would have to be considered. Also, under consideration would be the reports that R&D must make that are used to determine later R&D operations (e.g., project effectiveness summaries to receive financial support next year). Reports that are not used are a part of program, not of feedback: they are magic. Note that some operational objectives

[16] Litterer (1970) discusses the necessity for R&D to have a structure different from that of traditional bureaucratic production organizations. His discussion uses results from studies of Lawrence & Lorsch (1967). They find that subsystems develop differentiation related to their specific requirements and subenvironments. Further, in high producing organizations, integrating devices were more effective.

may be, in an objective, causal sense, unrelated to main objectives. Thus, feedback at one level becomes magic at the next level.

Assuming technically and interpersonally competent personnel, a high degree of self-organization is both feasible and effective.

Note that this does not mean that the self-organized subsystem reports to no other subsystem or that its objectives and programs are independent of other subsystems, but that the focal subsystem itself determines these lines of control. While at first it may appear that it is inconsistent to speak of an autonomous subsystem under control aspects of another subsystem, it should be remembered that the autonomous group has the power to alter or sever these control aspects. For example, while an R&D group may ask marketing for research projects (objectives), as long as R&D can determine on its own criteria when to accept which projects, then the R&D group will be autonomous in this respect. The term "control aspect" is used to indicate this voluntary means of organization. "high degree" may be taken as an absolute measure, or relative to most current practice.

Three more relations involving autonomy may be postulated.

Assuming technically and interpersonally competent personnel, if only one of the three factors can be relatively autonomous, it is most effective (and most feasible considering current organizational power distributions) to have the methods factor (cause-effect beliefs) autonomous in an R&D group.

Assuming technically and interpersonally competent personnel, the feedback factor of control (magic) will be the least feasible to make more autonomous.

Assuming technically and interpersonally competent personnel, a non-extreme amount of autonomy with respect to feedback will yield a more organizationally effective subsystem than either extreme of autonomy.

Subsystem operational objectives are liable to drift away from organizational objectives if some feedback control is not exercised. It is likely that feedback control will be coupled with superior objective setting. (an instance partially without such coupling would be employee evaluation where the employee sets his own career goals. Likewise, free-time research may be evaluated, but the researcher may choose any research topic.) An excessive number of reporting requirements, or even a few, may degenerate into magic, rather than being used to compare output and modify subsystem behavior.

The case of mixed magic-science (feedback) deserves special attention. In this instance, a superior subsystem may have a certain objective A (e.g., keeping a strong power position) and may institute a reporting program for a subordinate subsystem. However, the superior subsystem would explicilty announce an objective B (e.g., conducting good research, profitable to the firm). In this case, as viewed from the subordinate subsystem the reporting system is magic, as viewed from the superior subsystem and the actual (rather than announced) objectives it may be scientific (feedback).

A non-extreme amount of feedback autonomy balances the tendency for superior subsystems to develop operating objectives (or comparison criteria) at deviance from the overall organizational objectives with the tendency for subordinate subsystems to deviate.

These three control aspects of organizational behavior--mission, method, and magic--are an important influence on individual and organizational effectiveness. In any study of organizational behavior, it may often prove useful to obtain at least some data on the control matrix. In industrial R&D, control variables may be expected to play a central role. The main operating objectives of an industrial organization usually revolve around short-run profit. Long-run aspects of organizational objectives are often served by the R&D laboratory. (Of course, top management also has long-range functions.) By a Gresham's law of planning, short-run, programmatic behavior often becomes dominant over longer run, unprogrammed behavior. Thus, an industrial R&D lab may be dominated by other departments of the organization.

This domination of R&D may lead to laboratory and organizational control procedures which have adverse effects on the behavior and performance of the lab and, in turn, dysfunctional consequences for the rest of the organization. When control procedures are employed which consider the nature of the task at hand and of the people working at that task, laboratory and organizational effectiveness should be improved. The author has proposed, above, that a decrease in industrial magic and an increase in adaptive control and behavior are important aspects of such increased effectiveness. Further, it has been suggested that an atmosphere of trust, rather than of defensiveness, is conductive to proper organizational control.

Keeler's (1966: 195f) study of eight different laboratory environments supports some of the above postulates. He concludes that "an organization must have elements of both control and freedom to get meaningful creative activity."

More specific conclusions include:

a) centralization of decision-making reduces the opportunity and motivation for creativity;

b) high levels of internal communication, especially through informal channels are conducive to increasing motivation to be creative;

c) high levels of coworker empathy foster creative activity;

d) high levels of empathy and warmth of interpersonal relationships give psychological protection to an individual in an unpredictable environment. This protection fosters creativity.

e) responsible leadership is a desired organizational control mechanism that is function to creativity.

Summary of an effective R&D climate. Based on the general organizational considerations discussed so far, and on the specific situation of research and development laboratories, several conclusions can be made concerning what an effective climate for an R&D organization would be.

To begin with, technically competent personnel are needed. In addition, creativity is desired. Some of the significant characteristics of the creative person are a general lack of defensiveness, an openness to internal and external experience, high ego strength, tolerance of ambiguity and complexity, and independence. While technical competence is a basic necessity, it is not a sufficient condition for an effective lab. Even having "creative" individuals is not sufficient, for the management and climate of the organization can significantly modify, either favorably or unfavorably, the behavior of its members.

So that the problems the researchers work on will contribute to the organization's effectiveness, there must be effective communication of the organization's goals and environmental constraints. This will generally imply some degree of feedback control of researchers by laboratory management, and of the laboratory by the parent organization's management.

In any organization's operations, conflicts will arise. The greater the interpersonal competence of the lab's personnel, the more effectively they will be able to resolve such conflicts. Interpersonal competence will allow consideration of both the technical problem and the feelings of the individuals involved.

To facilitate researchers' motivation, participative decision-making can be employed. To permit greater amounts of scientists' energy going into productive work, defensive attitudes and behaviors need to be controlled and minimized. An atmosphere which permits trust and openness to develop and which fosters their growth will thus tend to promote effectiveness.[17] Throughout the organization, trust and openness are the processes that allow inquiry, reality-testing, and adaptation.

[17]Such a laboratory climate is similar to that of some university research groups. Grinnell (1967), Ritti & Goldner (1969), and Shepard (1954) discuss some problems and successes with such groups. Trust and openness can be even more critical for newly formed project teams or research groups. As Stinchcombe (1965: 149) comments, "new organizations must rely heavily on social relations among strangers. This means that relations of trust are much more precarious in new than old organizations .... Grinnell (1967) discusses how Creative Interprofessional Collaboration--which is characterized by a high degree of trust; mutual respect, commitment, and confrontation; and situational adaptability-- can facilitate interprofessional research.

2.10 Organizational development

This dissertation reports the results of a multi-goaled research project. Two of the goals were to understand better the role of trust in organizational behavior and to test explicit hypotheses involving trust. Another set of goals involved organizational development. These included testing the applicability of the research procedures for an ongoing system of "human resources accounting" and the relevance to the participants of the chosen measures. Thus far, this chapter has focused on a discussion of trust. This section will discuss organizational development: what it is, its relation to trust and openness, and some strategic issues in organizational development (OD).

What OD is: T-group beginnings. Organizational development grew out of the attempt to apply T-group technology to change programs in organizations. T-groups were accidentally discovered during a 1946 workshop on interracial relations (Benne, 1964). The workshop participants, with research observers, spent much of their formal program time in small groups in which the training focused on the analysis of back-home problems. In the evenings the training and research staff had meetings during which the process observations of the groups were discussed. Conference participants began to attend these staff meetings, and became quite involved along with the staff in analyzing and interpreting group behavior. Thus, an evolving discovery began:

> Group members, if they were confronted more or less objectively with data concerning their own behavior and its effects, and if they came to participate nondefensively in thinking about these data, might achieve highly meaningful learnings about themselves, about the responses of others to them, and about group behavior and group development in general (Benne, 1964: 83).

Out of this original 1946 staff group grew the National Training Laboratories (NTL), an organization associated with the National Educational Association. NTL held annual training conferences and experimented with various technologies. The "T-group" (T for training) evolved as a small group training procedure in which the participants would utilize their own behavior in that setting ("here and now" data) to help them learn about themselves and about the properties of groups.

"T-group," "sensitivity training," and "encounter group" are differing terms applied to a similar learning situation--the intensive group experience (Rogers, 1967b). Ever since its beginnings in 1946, T-group "technology" has been experimented with and has grown to include structured experiences similar to theater improvisation (Spolin, 1963), psychodrama (Moreno, 1946, 1969), Gestalt techniques (Perls, 1969), nonverbal exercises (cf. Duncan, 1969; Mehrabian, 1969; Mill & Ritvo, 1969), and other

procedures to help the participant learn. One of the goals of these potential ingredients in sensitivity training programs is to break through the barrier of intellectualization and verbalization to facilitate the participant experiencing his own behavior and affect (cf. Gunther, 1968).[1] Thus, one of the major goals of the intensive group experience is to allow the participant a supportive environment in which he may experiment with new ways of behaving, and to facilitate his development of new, more effective, ways of perceiving his reality (cf. section 2.03).

T-groups have other goals--explicitly value-laden, normative goals. Salient among these normative goals are a spirit of inquiry, authenticity in interpersonal relations, expanded consciousness and recognition of choice, and the conception of collaborative authority relationships (Bennis, 1962a). The theory of T-groups does not state that everything should always be questioned, that constant awareness is universally good, that authenticity is uniformly beneficial, or that collaboration is the best working relationship. The theory does state, however, that there are times when these values and behaviors are appropriate. Since many people in our culture do not hold these values, the T-group is a time when the participant can experience behavior based on these open norms. Thereafter, he should be aware of his additional options and better able to choose when they are appropriate for him and his situation.

Trust and openness are critical and central variables in T-group theory. Inquiry and expanded consciousness require openness to various forms of input, both from the self and from the environment. Inquiry and choice combine in individual responsibility; trust of self is required to accept that responsibility--to question, to choose, and to act. Trust of "the other" facilitates collaboration and the openness of authentic interpersonal relations.

What OD is: Definition and goals. Most writers on and practitioners of organizational development have their own definitions of what OD is. Although the specific formulations may differ, there is a substantial agreement

[1] "I knew a young man once who wanted to write a novel, and the first time he kissed a girl, he said to her anxiously, 'Now tell me in your own words exactly how that felt.' Later he gave up literature altogether in favor of experience. It was (he said) more interesting in itself, and a great deal easier to do." (John Bowen, New York Times, section VII, page 2, 4 September 1966.)

concerning the core of OD. Consolidating many of these specific definitions (Bennis, 1969; Burke & Hornstein, 1970; Gardner, 1964), this author would propose the following definition of OD:

> Organizational development is an educational strategy employing experienced-based behavior in order to achieve a self-renewing organization.

OD is based on behavioral science findings and hypotheses (What is OD?, 1968). These generally stress the value--for both the individual and for his work effectiveness in the organization--of confrontation, choice, and collaboration. From these initial theories, OD seeks to facilitate organizational members removing the barriers which prevent the release of human potential within the organization. Specific process goals of many OD programs might include: creating an open, problem-solving climate; supplementing the authority of status with that of competence; building trust; reducing inappropriate competition and fostering collaboration; developing reward systems which recognize both organizational and individual goals; locating decision-making and problem-solving responsibilities close to the information sources; increasing the sense of "ownership" of the organization and its objectives; and increasing self-control and self-direction for organizational members.

OD is a form of the classic "scientific method" (Bronowski, 1965; Kaplan,1964: 28) applied to organizational behavior by the organizational members themselves. And like the physical sciences, OD is subject to what Kaplan terms "the law of the instrument: ...give a small boy a hammer, and he will find that everything he encounters needs pounding." The objectives of OD are not to institute any particular style of behavior, but to help the individual have more options concerning his behavior, more flexibility in choosing these options, and increased knowledge of probable consequences of his options.

Although OD grew out of the T-group technology, OD is <u>not</u> a T-group in an organizational setting. OD is an approach to change. It seeks to foster a spirit of inquiry and collaboration; it works towards involving the members of the organization in designing and implementing their self-renewing organization.

<u>What OD is: Organizational practice</u>. In the early 1950's some business organizations saw the T-group as a technique to improve, especially among top and middle management, interpersonal relations and thus organizational performance. Initial "change strategies" involved sending an individual to an off-site "stranger lab," a T-group composed of people previously unknown to one another. Such residential stranger laboratories usually lasted one or two weeks. While significant individual learnings sometimes resulted from

participation in such a stranger lab, the organization itself was rarely changed.[2]

In the late 1950's a few organizations had external consultants design and run T-group programs specifically for their companies. These were not "stranger labs"; the participants had definite connections with one another. Some of the designs employed were "family labs," where the T-group was composed of an intact working group; "cousin labs," where the participants were of the same hierarchical rank but from different work groups; and "diagonally sliced labs," where individuals from different ranks and different work groups met.

[2]There is now a substantial research literature on the individual and organizational effects of various kinds of T-groups and other experienced-based learning designs. Comprehensive reviews include Argyris, 1968a; Buchanan, 1965, 1969; Campbell & Dunnette, 1968; Cooper & Mangham, 1970; Dunnette & Campbell, 1968; Durham, Gibb, & Knowles, 1967; Gibb, 1970; Gottschalk & Pattison, 1969; House, 1967, 1968; Lake, 1968; Lake, Ritvo, & O'Brien, 1969; Lieberman, 1970; Mangham & Cooper, 1969; Mouton & Blake, 1969; Patten, 1969; Schein & Bennis, 1965; Stock, 1964; and Yalom, 1970. French, 1969, offers a concise review of OD; Steele, 1970, presents a beautiful comment on OD research. Reports of specific programs appear frequently in the Journal of Applied Behavioral Science, occassional publications of the NTL Institute, and the Training and Development Journal.

There has also developed a large, popular literature on T-groups. Examples include Business Week, T-school for behaviorism, 10 January 1970; Family Circle (Lee Parr McGrath & Joan Scobey), A marathon assult on your hang-ups, November 1969; Glamour (Mid Turk), How to get to know someone deeply in 90 minutes, February 1969; Glamour (Marilyn Mercer), Sensitivity training: What happens when it goes wrong--and when it goes right, February 1970; Life (Jane Howard), Inhibitions thrown to the gentle winds, 12 July 1968; Look (George B. Leonard), The man and woman thing, 24 December 1968; Mademoiselle feature, Finding yourself--the great American hang-up, May 1970; Medical World News, Group search for healthier emotions, 27 March 1970; New York (Linda Francke), See me, feel me, touch me, heal me: The encounter group explosion, 25 May 1970; Newsweek, The group: Joy on Thursday, 12 May 1969; Playboy (Ernest Havemann), Alternatives to analysis, November 1969; Psychology Today, passim; Saturday Review (Max Birnbaum), Sense about sensitivity training, 15 November 1969; Science & Technology (Herbert E. Klein), T-groups: Talk, training, or therapy?, June 1968; Time, Human potential: The revolution in feeling, 9 November 1970; Today's Health (Ted J. Rakstis), Sensitivity training: Fad, fraud, or new frontier?, January 1970; Jane Howard's best-selling Please Touch (New York: McGraw-Hill, 1970); and the movie Bob and Carol and Ted and Alice.

Some of the popular and trade journal articles seem to emphasize the controversial nature of T-groups and to show a surprizing ignorance of the published research, other popular articles give a more "professional" report. Responsible critiques of sensitivity training techniques include William H. Blanchard, Ecstasy without agony is baloney, Psychology Today, 3, 8, January 1970; Marvin D. Dunnette, Should your people take sensitivity training, Innovation, number 14, 42-55, September 1970; Martin Lankin, Some ethical issues in sensitivity training, American Psychologist, 24, 10, 923-928, October 1969; NTL Institute, Standards for the use of laboratory method, n.d.; and Everett L. Shostrom, Group therapy: Let the buyer beward, Psychology Today, 2, 12, May 1969.

During the next decade, both internal and external change agents and consultants researched and experimented with various T-group related programs. By 1970, an extensive organizational development technology had been developed. Among the techniques potentially useful in an OD program are the T-group, team building labs, intergroup problem-solving sessions, techno-structural interventions, data feedback, and skill training (Burke & Hornstein, 1970). Some OD consultants have developed approaches to OD which are now closely associated with them: Beckhard and the confrontation meeting (1967, 1969); Blake and Mouton (1969) with their Organizational Grid; the focus on organizational interfaces, differentiation, and integration of Lawrence and Lorsch (1967, 1969); Schein's (1969) process consultation; and Walton's approach to third party consultation (1969).

These are only potentially useful techniques and approaches. The appropriateness of any given technique or approach will be influenced by the specific characteristics of the OD agent (cf. Nylen, Mitchell, & Stout on the "helping relationship," 1967: 112-117), his client group, and situational factors (e.g., Harrison, 1970). One danger in OD is the attempt to achieve an organic, self-renewing organization through mechanistic means (Siegel, 1969). Bob Euritt has commented (NTL OD Network meeting, Minneapolis, October 1970) that even the well known "organic problem-solving" approach Shel Davis (1967) used at TRW Systems might well have failed at another division of the company. There are pressures to make routine and standardized the initially nonprogrammed, innovative approach (Simon, 1965). A good OD program will be aware of "standardized" tools and approaches, but will remain open to the evolving characteristics and needs of the situation at hand.

Planning and spontaneity. Many conceptions of organizational development see it as an essentially planned effort (cf. Beckhard, 1969; Burke & Hornstein, 1970). The author believes that elements of both planning and spontaneity contribute to successful change efforts.[3] Specifically, while the overall goals of an OD effort (for example, inquiry, authenticity, collaboration, and choice) and some of the strategy (for example, involving top management in laboratory learning) may be planned before the organization becomes intensively involved with the OD program, it is likely that the program will be more effective if many of the tactics and micro-strategies evolve during the development of the change program (cf. Duhl, 1967).

[3]The author's thoughts on "planned" and "spontaneous" approaches to change were stimulated by discussions with William C. Schutz and with Daniel Shurman.

Spontaneity permits maximum utilization of the resources available at the moment to reach goals appropriate to the situation at hand. Planning permits the accumulation of resources (money, skill, knowledge, and commitment), but may also be seen as a defense (sometimes appropriate, sometimes inappropriate) against the future (cf. Perls, 1969).

Many "management science" or "operations research" change programs tend to be planned in great detail, yet often they encounter resistance and unanticipated dysfunctions (cf. Greiner, 1967; Riland, 1968; section 2.03 on "rational" and "real" models of man). On the other hand, some rather open-ended change programs encounter difficulties which potentially could have been anticipated (Kegan, 1970b; Shaevitz, 1970; Rogers, 1967a, anticipates some of the difficulties reported by Shaevitz). The blend of planning and spontaneity appropriate for any given change effort will vary with the change agent, his clients, the organization, and the environmental conditions. However, even with all of these factors, a guiding proposition may be formulated:

> Planning should be relied upon when the change agent feels he and his system will not otherwise have the resources (money, commitment, skill, etc.) necessary to effect the desired change. Spontaneity may be relied upon when it is felt such resources will be available without planning at the needed time.

2.11 Environmental and cultural influences

This chapter has focused on a theory of trust and openness in organizational behavior. Always implicit, and sometimes explicit, has been the environmental and cultural background of this theory: high technology organizations in contemporary American society. This section will discuss trust as it relates to probable changes in the American environment and to differing cultures.

Probable futures for America. At least for the next several decades, American society will probably become increasingly complex and increasingly interrelated. Because of the maniford effects of any single action, individual laissez-faire philosophies are likely to be replaced by policies involving larger social aggregrates (cf. Crowe, 1969; Hardin, 1968; Mesthene, 1968; Wagar, 1970). The Commission on the Year 2000 forsees that "domestically the United States is becoming a communal society rather than a contractual one" (Bell, 1967: 977).

As society becomes more interdependent and populations live more densely, the correlation between a man's well-being and that of his neighbor increases (but, Cf. Milgram, 1970). School decay, pollution, misuse of natural resources, and the threat of nuclear and conventional warfare are all contemporary problems whose solutions must benefit the entire community if any individual is to benefit (cf. Benedict, 1970).

The Commission has further identified several long-term trends, interrelated trends which seem likely to continue at least to the turn of the century (Kahn & Wiener, 1967: 706). These include increasingly sensate, secular, humanistic cultures; the institutionalization of change, especially research, development, innovation, and diffusion; increasing affluence and leisure; population growth; urbanization; increased capability for mass destruction; increasing tempo of change; and the increasing universality of these trends.

Perhaps one of the main causal variables for these trends is our society's increasing affluence and consequent decreasing need to be concerned with individual survival.[1] A society of individuals concerned about each one's own

[1] Keniston (1965: 440) comments on poverty and humanity: "...only those who have been able to conquer poverty and tyranny have energy to cultivate their full humanity." While our society as a whole may be affluent, some individuals in it are poor. However, as the above trends continue, one man's poverty will increasingly influence the well-being of his fellow citizens. Thus it will be to the benefit of both poor and affluent to ensure survival for both.

individual survival "produces a world of mutual threat, which reaffirms" the need for competition for survival (Shepard, 1965: 1119). However, when individual survival is not a salient problem, other, "higher" needs may be attended to and the individual may more readily approach Rogers' ideal of the "fully functioning person" (1961). Also, when individual survival is not a problem, the individual may focus his concern on issues involving a longer time perspective or larger aggregrates of individuals.

These societal trends are also manifest in the industrial organization Increasingly, business is finding it must broaden its concern from immediate profit to include issues affecting the society as a whole (Ansoff & Brandenburg, 1969; Bennis, 1966; Drucker, 1969; Golembiewski, 1969; Haire, 1967; Henderson, 1968; Keezer, 1968; Tannenbaum & Davis, 1969). And internally, modern organizations are again confronting change.

In 1912 when Frederick Taylor and Scientific Management were investigated by Congress, many Americans were centrally concerned with their physical needs: food, shelter, and clothing. Even in 1939 during the time of George Mayo and his Hawthorne studies, the concern with the physical needs was large. But with the growing prosperity of the United States following World War Two, lower needs became relatively satisfied and higher needs gained greater prominence. From initial concerns about salary, physical working conditions, and retirement security, many organizational members are now concerned about the quality of their working life (cf. Burger's discussion of automated affection, 1969; also Gardner, 1963; Townsend, 1970).

In general, these probable futures for American society and industry will support or intensify the relationships of trust discussed in this chapter. Change, interdependence, and the need for increasing utilization of an individual's potential are three elements of the probable future. All three can be significantly influenced by trust and openness.

In a changing environment, continual reality-testing is necessary to determine what old knowledge is still appropriate and which beliefs should be altered to meet the new conditions. Sufficient self trust is required to remain open to "what is" and to the possibility of the necessity for personal change.

When people are interdependent, trust of one another is likely to make their work on tasks of mutual concern easier and more effective. This is not to say that one should always trust those whose work or goals may interact with his own. It is to say, however, that if trusting relationships can reasonably be established and maintained, more optimal solutions are likely to be found.

And the process of finding those solutions is likely to be more enjoyable and fulfilling for the participants.

With increasingly interdependent, changing situations, solutions to problems will become more difficult. To find solutions will increasingly require greater resources, especially human resources. Thus, in the future, it will be increasingly necessary to tap previously unused human potentials. In many cases, this will entail trusting another that he has contributions to make and that he will make them. Again, total lack of control is not recommended. What is suggested is trusting others--especially formal subordinates, liaison groups, and technical personnel with training different from one's own--enough to support their problem solving efforts and enough to test their effectiveness with such support.

Cultural considerations. While this chapter is oriented toward contemporary American society, some readily available cross-cultural research may be used to further probe questions of external validity (cf. Roberts, 1970).

In their study of political attitudes and democracy in five nations, Almond and Verba (1965) measured "trust" using Rosenberg's original (1956) Faith-in-People scale. They found (at 214) "the Americans and British tend to be consistently most positive about the safety and responsiveness of the human environment, the Germans and Italians more negative, and the Mexicans inconsistent."

While in the U. K. and the U. S. faith in people, or trust in people-in-general, is correlated with one's propensity to form political action groups, this relationship does not hold in the other three nations. Almond and Verba interpret this by seeing general social trust translated into politically relevant trust in the U. K. and the U. S., while such translation does not occur in Mexico, Germany, and Italy. That is, in the latter three countries, politics is seen as "a separate, independent sphere of activity for which one has a set of political attitudes not particularly grounded in general social attitudes" (at 230).

This finding may be generalized to imply that increased trust will not necessarily lead to increased effectiveness unless the focal individual or group perceives the trusted other as a potential coparticipant in his efforts.

Edward Banfield (1958: 83) has studied an Italian village to answer why there was an "absence of organized action in the face of pressing local problems." He found the major explanation to be an ethos--"amoral familism"--which states

that one should "maximize the material, short-run advantage of the nuclear family [and] assume that all others will do likewise." The extreme poverty, high mortality rate, and low social status of the region contributed to the origin of the ethos.

Banfield (at 158f) concludes that

> amoral familism must be modified in at least three respects in order for organization, and thus economic and political progress, to be possible: 1) The individual must define self or family interest less narrowly than material, short-run advantage. ... 2) A few persons, at least, must have the moral capacity to act as leaders. ... 3) Voters and others must not destroy organization gratuitously or out of spite or envy; that is, they must be willing to tolerate it when it does not interfere with them.

However, even if trust and time perspectives were increased, the village's "isolation and relative lack of resources give it a comparative disadvantage which no amount of cooperation can overcome" (at 157).

Although the culture is different, this lack of corporate action in the Italian village may be directly related to impediments to effectiveness in American organizations. Rather than an "amoral familism," many organizations seem to be governed by an "amoral work-groupism" or "amoral individualism." Such an ethos would see other work groups or individuals within the organization as competitors. If trust and perspectives were increased, the organization's members may shift to view one another as generally engaged in collaborative efforts. If competition exists, often it will be against "nature" or other external organizations; when internal competition exists, it should be "appropriate" (Beckhard, 1969).

Pearlin and Kohn (1968: 478) studied social class, occupation, and parental values in a cross-cultural project involving the United States and Italy. Although they found Italian parental values to be more adult-centered and American values more child-centered, the relationship between social class and parental values was similar in both countries. They saw occupations--"how the structure of work imposes constraints and imperatives" on the worker-- as the critical dimension of social class causing this relationship. Three aspects of occupation--closeness of supervision, type of work (with things, people, or ideas), and degree of self-reliance required for the job--were measured. Each of the three was independently related to fathers' values--self-control versus obedience--for their children; the combined effect of the three work aspects accounted for a "very large part of the difference between middle- and working-class fathers' values."

From this study it may be inferred that the structure of his work has a great deal of leverage on an employee's values. If an organization wishes to promote a climate of trust and openness, it cannot rely on "importing" individuals who hold trusting values and placing them in an unchanged, mistrusting work situation, for they are liable to shift towards the prevailing values of the organization. To promote trust and openness, the work structure and the climate of the organization, or of the group under study, must support the desired values.

2.12 Hypotheses

The underlying general research area of this dissertation is that concerning trust, humanism in organizations, and the relationship between the individual and his organized society. From this general area, two specific research questions are addressed: a) what are some of the individual and organizational correlates of trust, and b) what are some measures which may indicate the effectiveness of organizational development and sensitivity training programs.

Two core hypotheses underly this research. They are:

> CH 1. An open and trusting environment within certain types of organizations will lead to increased organizational effectiveness and to increased individual effectiveness.
>
> CH 2. For certain types of organizations, proper sensitivity training will lead to the fostering and support of an open and trusting environment within the organization.

These core hypotheses have significance in three areas: effectiveness, sensitivity training, and methodology. Increased organizational effectiveness is generally a desired goal. In addition, there is growing recognition that greater concern for the individual qua human, a fostering of a conception of the dignity of man, is a critical need for our culture.

Sensitivity training and organizational development programs are increasingly being used in organizations; their effects have not yet been adequately researched (cf. note 2, section 2.10). These programs are potentially powerful agents of social change. With concern both for efficiency and efficaciousness, additional research can be useful.

Finally, the procedures and methodology developed during this study can contribute to longitudinal studies, administrative experimentation, and organizational development programs.

The core hypotheses may be stated as more operational hypotheses, reflecting the measures used in this study.

> H 1. The more an individual trusts his work group and the more he generally trusts others with whom he interacts during his work, the greater will be his self-actualization.

It may be expected that both trust of work group and trust of others will additively contribute to self-actualization, although trust of work group should be the stronger effect. The suggested (this is not part of the hypothesis) causal sequence is: actual working conditions moving toward the elements of

self-actualization, perception of trust, perception of self-actualization. The elements of self-actualization (Bonjean & Vance, 1968: 300) are self-determination, independence, variety, challenge, a long time perspective, awareness and control over self, and equal or superordinate position relative to peers.

> H 2a. The more the members of a group trust the group, and the more they generally trust others with whom they interact during their work, the more effective the group will be in its goal accomplishment.

This hypothesis assumes that the members of the group have not lost touch with reality, are not in a state of "blissful ignorance," and are perceiving the demands of their task. A subsystem out of touch with its task demands cannot long survive in a suprasystem which is in touch with its reality. The group's rate of transformation (an unaware group may be transformed to awareness or the group may not "survive") may be expected to be more rapid the closer to that group aware interacting "others" are. Typical "others" are supervisors, department heads, presidents, stockholders, and customers.

> H 2b. The higher the group trust of itself, the greater the group's effectiveness toward achieving its own goals.

> H 2c. The higher the group trust of others with whom they interact, the greater the group's effectiveness toward achieving the organization's goals.

> H 3. A "proper" organizational development program will increase individuals' feelings of trust toward their own work group and toward others while keeping the individuals aware of the demands of their tasks.

A long time period may be necessary for such global results: hostile groups may exist within the organization. Short-run results of proper sensitivity training and organizational development programs may be expected to be the increasing of trust of one's own group, and with a longer time, of trust toward some other interacting groups.

The adjective "proper" in H3 needs additional comment. As indicated in section 2.10, sensitivity training is not a panacea; it is a tool which can be well used or quite misused. Schein and Bennis's (1965: 216) five-step model for diagnosing the state of a target system indicates significant preconditions for the success of an organizational development program. These preconditions include a) the OD change goals being appropriate to the target system; b) the

target system being culturally prepared for the OD program; c) key people being involved and committed; d) members of the target system being adequately prepared and oriented to the program; and e) voluntary participation being insured. In addition to a receptive target system, the change agent must be competent. In sum, a "proper" organizational development plan may be seen as one which competent applied behavioral scientists believe to have met the significant preconditons for success. This test of a "proper" OD program may be made before the effectiveness of the program is measured, thus avoiding problems of tautology and contaminated judgment.

Due to the time span of this dissertation study and to the procedures for selecting participating groups (see section 3.03), a rigorous, formal test of H 3 is not possible. However, for two groups (P01 and P02) with relatively well defined OD programs and with at least a year's data, some explorations of H 3 can be made.

Section 3.07 describes the development of the scales used in this study; section 3.10 presents an evaluation of the scales. Following are the major variables of the three operational hypotheses, together with their indicators.

Individual trust of his own and other groups	Q07
Individual self-actualization	Q05
Group trust of itself and other groups	Q07
Group effectiveness: own & organizational	Q15
OD program	Q17 & interviews

Significant parameters mentioned throughout this chapter include the type of organization, its technology and market structure, and top management knowledge of and support for OD and sensitivity training.

Many other variables were measured in this study. These constitute an implicit hypothesis: that there will be interesting relations among these additional variables. These additional variables include demographic items (measured by Q11): age, sex, years of formal education completed, academic degrees, years in present organizational position, years with the company, number of people reporting to the participant, and the participant's hierarchical index; personality variables (measured by Q02): openness to experience, ego strength, and defensiveness; confidence in the information network (Q06); openness in communication (Q08); evaluation of past decisions (Q09); and intergroup relationships (Q12).

During the course of this study, additional, secondary hypotheses were

formally stated. Such hypothesis conceptualization was stimulated by the editing of returned questionnaires for completeness. Some questionnaires evoked the thought: "Variable x seems unusual, could it relate to variable y?" However, variables x and y were not compared until after the hypotheses were formally stated. Thus, although developed after this study began, these secondary hypotheses may still be considered as a priori.

HS 1. a) There is a positive correlation between the time taken to complete the questionnaire and the participant's defensiveness (K score on Q04); and b) a negative correlation between this time and his trust of people (Q07).

HS 2. Individuals dropping from the study will have extreme scores on some dimension. Probable dimensions and directions include long completion time, high defensiveness, low ego strength, low trust of people or of own work group, and low self-actualization (cf. Hamilton, 1968).

HS 3. Over a period of time, with proper organizational development, the difference between self and other disclosure scores (Q08) should decrease.

Figures 1, 3, 4, and 5 contain many implicit propositions. Those of Figure 1 include:

HS 4. Defensiveness (Q04-K) and openness to experience (Q03) are inversely correlated.

HS 5. Openness to experience and self-actualization (Q05) positively correlate.

HS 6. Self-actualization and group effectiveness (Q15) positively correlate.

HS 7. Self-actualization and organizational effectiveness (Q15) positively correlate.

HS 8. Ego strength (Q04-Es) and disclosure (Q08-self) positively correlate.

HS 9. Decision evaluation (Q09) and effectiveness (Q15) positively correlate.

In the conceptual development of this research, many propositions were conceived or encountered in the literature. Some of these have been incorporated into the discussions of this chapter. Others have not been directly studied in this research. However, inasmuch as they may be helpful in other organizational studies of trust, they are listed here as tertiary hypotheses.

HT 1. Inappropriate defensiveness restricts an individual's functioning.

Many schools of psychotherapy agree that the individual needs some defense mechanisms (e.g., Ford & Urban, 1963). However, when defensive measures are employed unnecessarily (i.e., when "reality" indicates no actual threat, cf. Kaplan (1964: 128) on intersubjectivity--a procedure to test reality), the individual becomes less fully functioning than he might be (Rogers, 1961); he becomes more dead and less alive (Perls, 1969).

HT 2. For strong organizations whose products compete in the marketplace on the basis of inherent, technical differences from other products and whose members have fairly high levels of need for achievement, an internal atmosphere of openness will be beneficial to the organization.

HT 3. For organizations that are in less strong positions, whose products compete on the basis of gimmicks or nontechnical differentiation, or whose members have relatively low levels of need for achievement, some degree of openness will be beneficial, but the nature of the threats to the organization--from both internal and external sources--must not be forgotten.

Individuals with a high need for achievement may be expected to be motivated toward and receive satisfaction from task accomplishment at an individually challenging and reasonable level. In contrast, individuals with a high need for power may be expected to be motivated toward and receive satisfaction from successful competition (cf. McClelland, 1961). In addition to such relations between personality and competition, competition is also manifest in organizational behavior. Goldner (1965) reports a study on demotion; Steinmetz (1968) discusses the problem of firing a manager; Fair (1966) considers the possibilities for increased use of corporate spies. McCarthy (1965: 69) presents a study of R & D's response to market crises in a highly competitive oligopolistic industry. His results indicate that in the cases studied, product innovations were made with a primary objective of threatening the market positon of rival firms.

HT 4. "Organizations formed at one time typically have a different social structure from those formed at another time" (Stinchcombe, 1965: 154).

HT 5. An organization with an "intellectual, rational" social structure will more easily foster openness than will an organization with a "power" social structure (cf. Stinchcombe, 1965).

HT 6. Stinchcombe's "modern" industries will approximate

the "rational" social structure; the "railroad age" industries will approximate the "power" social structure.

"Power" orientations tend to employ win-lose, zero-sum philosophies; "rational" norms, on the other hand, place greater emphasis on the possibilities of creation and synergy. Hypotheses HT 4 through HT 6 extend the concepts of HT 2 and HT 3--trust and competitive environments--to relatively enduring factors in the organization which may have been influenced by its historical founding.

HT 7. Work concerned with the creation and distribution of information will be more sensitive to these trust propositions than will work concerned with the production and distribution of physical objects.

HT 8. Work involving people will be more sensitive to these trust propositions than will work involving physical objects.

Traditional values of possession make the sharing of intangibles less likely to be considered a win-lose, zero-sum transaction, than the sharing of physical objects.

HT 9. The differential effects of trust and openness will be more pronounced for managers than for bench workers.

To the extent that the work of managers involves more unprogrammed decision-making and more interpersonal communication and coordination than that of bench workers, the effects of trust and openness on communication and information exchange should be more pronounced for the managers (see section 2.04).

HT 10. Managerial styles in one culture may have different results when applied in a different culture.

Cultures differ, as do some of the psychological underpinnings of them (Hsu, 1963; Kroeber, 1948). And these psychological differences may mean that people in one culture will interpret situations and stimuli in a manner different than individuals from another culture. For example, Lowin (1968: 79) refers to several studies indicating some effects of cultural differences on the effectiveness of participative decision-making. Pfaff and Pfaff (1967) discuss problems of a manager adapting to a foreign culture. Finally, Prasad (1969) discusses forces changing the traditional paternalistic authority system in Japanese industry.

HT 11. The easiest method of influencing individuals, organizations, and the society in the United States to develop and maintain open and trusting behavior is through occupational organizations.

Section 2.11 discussed the cross-cultural research of Pearlin and Kohn (1966). This study indicated that a man's work structure had an extremely strong effect on his values for his children.

CHAPTER THREE: Method

3.01 Beginnings

The author's interest in trust and planned change evolved over several years and through many disciplines. Study in international politics brought together game theory and Gandhi's satyagraha (non-violent resistance), and indicated that cooperative non-zero-sum games can result in more optimal outcomes to all participants. Readings and field surveys focusing on local governmental unit integration and natural resources conservation underscored the importance of individual values and the necessity of value change to solve broad areas of social problems. Key concepts here were social costs, altruistic and helping behavior, responsibility, and community. Research on decision-making resulted in initial propositions relating trust to learning and reality-testing, and these in turn to the quality of decisions made. A three and a half year period was covered from the beginning explorations in international politics to these initial propositions.

Research to this point was heavily focused on the theoretical aspects (including past research findings) of trust, rather than on the methodological problems of researching it. By the time these initial propositions were formulated, the author was convinced that this was a fruitful area of study, related to many significant problems. After this point, attention shifted to the design and methodological problems in studying trust.

It was early decided that research should be conducted in natural field settings rather than laboratory situations. A laboratory situation could not readily reproduce the extended commitment, importance of outcomes, intergroup relations, and complexity of the natural environment which naturally occur in operating organizations. This use of a field study was also congruent with most of the other organization theory studies at Northwestern.

A multiple time-series, natural quasi-experimental research design was chosen for two principal reasons: methodological rigor and human resources accounting. A rigorous test of the causal relationship between trust and individual and organizational behavior could be made based on the classic before-after design if a suitable experimental stimulus manipulating trust could be identified. Sensitivity training was considered such a stimulus (Bion, 1961; Gibb, 1964; Schein & Bennis, 1965).

The change from a defensive organizational atmosphere to one of openness

and trust is not a small one, and was not expected to occur in a short time. Initial readings on sensitivity training supported the necessity for a study with a long time horizon. For example, Harrison (1967: 13) found that changes in the participants of a laboratory training program were not measurable until six months after the completion of the experience. If it takes such periods of time for individual changes to develop, changes within an organization, with many interacting individuals, may be expected to take at least as long to develop and stabilize.

There was another reason for a long term study. Campbell (1967) notes that the effects of the introduction of a testing procedure may be confused with the effects of the experimental stimulus. To avoid this threat to validity, he suggests that relevant records be institutionalized, that is, kept on a regular basis by the organization. Later, when an experimental stimulus is introduced--when some organizational procedure is changed--the observed changes in behavior will not be due to a simultaneous change in record keeping.

It was considered extremely likely that special records would have to be instituted because few, if any, organizations now collect all the data which would be needed to test the hypotheses of the investigation. Managements now have available sophisticated accounting procedures to help with their decision-making on financial matters. However, accounting procedures for an organization's "human resources" are in an early state of development. (Cf. Likert's use of human resource accounting, Brummet, Flamholtz, & Pyle, 1969; Brummet, Pyle, & Flamholtz, 1969; Likert, 1967.) An outgrowth of this study was hoped to be a contribution toward a system of human resources accounting.

Another threat to validity was selection: biases resulting from differential recruitment of respondents for comparison groups. Akin to this threat was that of experimental mortality. In research with industrial organizations, one cannot completely determine which organizations will participate: the decision is primarily that of the organization itself. Thus, from the population of all American industrial organizations, only some will permit an outside researcher to study them. Another kind of experimental mortality involves the sensitivity training program itself. Some organizations will choose to engage in sensitivity training programs, some will drop them, and some will never begin such programs. Any sampling procedure which neglected to consider these data biases would seriously limit the generalizability of the research.

3.02 Initial Research Design

In consideration of these threats to validity and of the practical limitations of field research, an initial research design was proposed in March, 1968.

The population under study would be research and development departments of American industry.[1] From this population, several organizations which would be likely to introduce sensitivity training procedures and some organizations which were not likely to introduce such procedures would be selected. Which firms would be likely to begin such programs would be determined through correspondence with leading practitioners of sensitivity training and organizational development programs and through intensive background interviews in proposed firms. The firms finally selected should, if possible, be in similar industries to permit control for differences in technologies and market structure.

Given this initial sample of organizations, each would be asked to participate in the study. Participation would include an explicit agreement to stay with the study for a minimum of four years and to maintain the specified institutional records. A four year time period was chosen to provide time for 1) the effects of the new recordkeeping to stabilize, 2) the training procedure, where used, to be completed, and 3) the effects of the training procedure to stabilize.

At this stage of the research planning, the author considered that the dissertation work itself would consist of selecting, modifying, and organizing research instruments (questionnaires, interview schedules, or unobtrusive measures) and establishing other procedures to ensure uniformity and validity in the data collection from all field sites; the initial study was planned to be a post-doctoral investigation.

While the exact form of the research instruments was not known, it was determined that measures should be taken on the variables of the study at reg-

[1] Research and development departments were chosen because 1) since they are concerned with creativity, information exchange, and decision-making, an atmosphere of trust and openness may be expected to have significant effects; and 2) the Research Management Group of Northwestern University (cf. POMRAD, 1966, 1967, 1970) has been engaged in a continuing research program on research and development organizations.

ular intervals, for example, quarterly. The records should be designed to be simple and short enough so as to encourage high response rates and so as to not cause undue burden on the organization.

The overall initial research design may be diagrammed using the notation of Campbell and Stanley (1963: 6) (see figure 7). While the observation, O, is presented as a single point in time, the experimental stimulus, X, should not be so considered here. Since the introduction and implementation of a sensitivity training program extends over a period of time, perhaps several months, X should be interpreted as extending over this period of time.

Several organization-design types were considered possible. The ones to actually be used in the study could not be specified in advance because it could not then be known which firms would choose to conduct sensitivity training programs, or when they would choose to do so. However, it was hoped that with help from sensitivity training practitioners, a judicious choice of firms would be made.

A hypothetical study design might include several firms. Firms A through H are in the same industry, firms J and K are in another industry. Firms A, B, E, F, G, and J choose to have sensitivity training programs. Firm H has already started its program before this study begins; Firm G decided to begin a program after the others have so decided. Firm E stops participating in this study in the second study year. Firm F discontinues its sensitivity training program before it is completed.

The number of firms to be included in the study would depend on two major factors. First was the number of firms which would will be willing to participate. While it was possible that more firms would be willing to participate than could be adequately studied by the research team, this was considered unlikely. If such a situation were to occur, a selection of firms would be made to best utilize the resources of the study team and, within these limits, to establish the best conditions for the test of the hypotheses.

Second was the resources of the study team. While the data collection instruments were to be designed so as to minimize direct supervision by the study team, some field contact with the participating firms by the study team was deemed desirable. There were several reasons for this. No design can a priori consider all potentially relevant variables and parameters to be encountered in a study. By maintaining contact with the field site, the researcher may more readily become aware of relevant events influencing the

Figure 7. A Quasi-Experimental Design and Firm Types*

Firm	Year 1	2	3	4
A	0 0 0 0 X	0 0 0 0	0 0 0 0	0 0 0 0
B	0 0 0 0 X	0 0 0 0	0 0 0 0	0 0 0 0
C	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
D	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
E	0 0 0 0 X	0 0 0		
F	0 0 0 0(X)	0 0 0 0	0 0 0 0	0 0 0 0
G	0 0 0 0	0 0 X 0 0	0 0 0 0	0 0 0 0
H	X 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
J	0 0 0 0 X	0 0 0 0	0 0 0 0	0 0 0 0
K	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0

*An X represents the exposure of a group to the experimental variable or event, the effects of which are to be measured; 0 refers to some process of observation or measurement; the Xs and 0s in a given row are applied to the same specific persons. The left-to-right dimension indicates the temporal order. Xs and 0s vertical to one another are simultaneous; 0s occur at a point in time, Xs extend over a period of time. (After Campbell & Stanley, 1963: 6.)

history of the organization. Also, there are many varieties of sensitivity training programs in use. While some objective measure might be used to classify these different programs, subjective evaluations are also important. Finally, in any long term study, maintaining good rapport with the participants is essential for keeping their cooperation.

The term "study team" was used to provide a flexible design. However, it was considered as most likely that for the dissertation research, the study team would consist of one person--the author. Considering all the features of this initial design, five to fifteen participating firms, each with two to five groups, were desired.

3.03 Survey of the Organizational Development Field

In March, 1968, a questionnaire was sent to selected sensitivity training practitioners. The initial sampling was from fellows and associates of NTL Institute (according to a Fall, 1967 roster). The questionnaire (see appendix) asked for firms known to have conducted in-house sensitivity training programs, who conducted the program--including whether they were an internal or an outside group, and for any firms known to be likely to start such a program in the near future. Additional questionnaires were mailed in May and July.

All together 42 questionnaires were sent and 34 were returned. Forty industrial organizations and 15 non-industrial ones (mainly governmental or service) were reported with considerable overlap among respondents.[1] The organizations were ranked according to probable value as a research site, and in December, 1968, letters (see appendix) were sent to the heads of the Organizational Development (OD) departments of six organizations re-

[1] Jack Gibb reported that "something like 240 firms have done in-house sensitivity programs" since 1955. This figure may be taken to include bringing in a consultant, as well as continuing OD with work groups. The NTL OD Network consists of people who, for the most part, direct ongoing programs of OD using some element of laboratory education in their design. It had about 175 members in January, 1969.

questing an exploratory discussion of their experience with in-house sensitivity training programs. By September, 1969, interviews (see appendix for the Exploratory Interview schedule) were conducted with 14 organizations. Due to resource constraints, primarily travel money, only organizations in the northeast quadrant of the United States (roughly Chicago through Boston and Washington, D.C.) were considered. Only two organizations contacted refused to grant such an exploratory interview.

Besides exploring their experience with sensitivity training, the exploratory interview briefly outlined this research project and requested participation. It should be stressed that this was a research study, no consulting was done. Of the fourteen OD departments interviewed, thirteen expressed strong interest in the study and a desire to cooperate. However, ten organizations did not feel that they could participate "at that time." One firm was suffering from poor business conditions. The OD specialists of four firms did want to participate, but were apprehensive that at that time their clients, the R&D personnel, would not participate in the study. That is, the OD specialists felt that initial work was needed on the organizational climate of the R&D department before cooperation could be expected! All four firms did ask that the author maintain contact with them, so that if internal conditions changed they might participate in the study. Such contact was maintained; however, conditions did not change to permit their participation. (During this period there was a general squeeze in the national economy and many OD departments felt on the defensive to justify their programs and budgets. Sensational and generally less than accurate reports on sensitivity training also appeared during this time in the public press; they did not help the position of the OD specialists either--cf. Kegan, 1970b.)

In two organizations, personnel changes made participation difficult. In one of these, an OD program was in the planning stages when the OD agent left for another company. In the other organization, the OD department had just suffered severe cutbacks. The remaining three interested organizations were considered, either by the author or by the OD specialists, to be inappropriate for the study. This was due to the kind of organization members involved in the OD program. Although these three firms had technical capability, the members involved in the OD programs were fairly removed from R & D personnel.

Three firms (Companies G, P, and V) did agree to participate in the study. Initial contacts with these three organizations were made in September, January, and July, 1969. There was a fifteen month period, January, 1969 to

April, 1970, from the first contact with the first organization, Company P, to the initial obtaining of data from the last group in the study, G03. During this period, research instruments and study procedures were tested and revised. Most of the development of the research instruments occurred prior to implementing the study in the first organization, but the procedures used to implement the study were continually being improved.

3.04 Field Site Procedures

To ensure anonymity of the participants, groups, and organizations, code numbers were used. Combined with a code for the date of the questionnaire administration, this also provided a means of readily identifying all data. The identification code contained four parts: date, company, focal group, and participant.

The code identification 469/R02-13 may be used as an example. Three digits (469) represent the month and year of questionnaire administration. The letters X, Y, and Z were used for October, November, and December. Inclusion of the date of administration in the data code number was critical for time series data. A letter (R) indicated the company and two digits (01) indicated the focal group. Finally another two digit code (-13) indicated the specific individual participant. Thus, the above example identifies data obtained in April, 1969, from participant 13, a member of the second focal group of company R. A focal group code of 00 (eg. R00-15) was used for the OD agent and for various levels of supervisors of the focal groups. 00 focal group members generally contributed only Q15, Group Effectiveness Rating, data. Since the various groups began the study at differing times, another date code convention is sometimes used in this dissertation to indicate first, second, or third questionnaire administration. 1P indicates the first questionnaire administration to all Company P groups. Specifically, this would be 469/P01, 869/P02, 170/P03 data. 1GPV indicates the first questionnaire administration for all three companies, G, P, and V.

Establishing a field site involved six stages: finding a potential site, securing access to the site, interesting the OD agent in participating

in the study, identifying groups likely to participate, securing the participation of the focal groups, and administering the scales. The first three stages have been discussed above, under section 3.03.

The basic operating criteria for the selection of focal groups were 1) would they be an interesting group to study and 2) would they be willing to participate (see appendix for "Selection of Focal and Target Groups"). "Interesting" generally implied that some change in group climate (trust and openness) was expected some time during the study. After the OD agent identified a likely focal group, he discussed the study with the head of the group. After this discussion (all of the groups selected as likely participants by the OD agent and approached by him elected to participate), the study was explained to the entire group. The confidential nature of this study (see "Confidentiality," appendix) was stressed during the explanation. In Companies G and P, the author met with each focal group and explained the study; he also met with the heads of groups G01, P01, and P02 for their initial briefings. The Company V site was operated as a remote one; the author met only the OD agent before the study began.

All groups approached elected to participate. Although this was primarily a public group decision, each individual had the option of choosing to not participate. A few individuals did not wish to participate. Table 3 indicates the total size of each group as of the first data administration and the number of study participants. Companies G and P had very full participation; Group V02's participation was less complete.

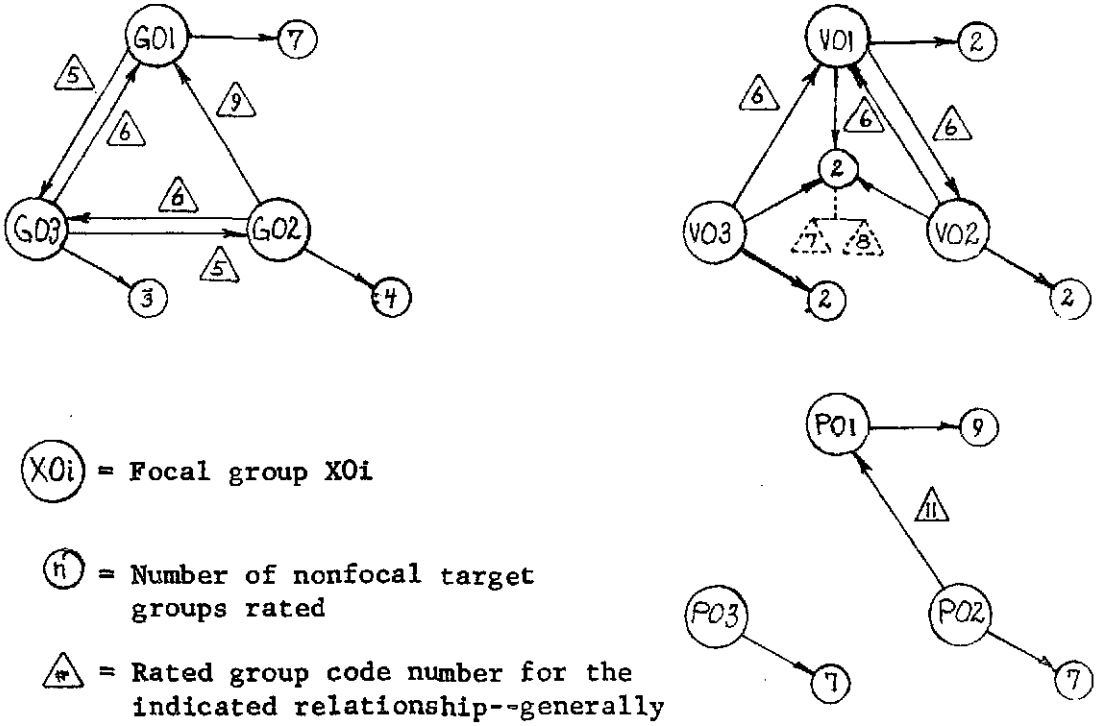
Table 3. Size of Groups and Degree of Participation, Based on Time of First Data Administration

Focal Group	Total Size 1st Admin.	Participants 1st Admin.	Left Group or Dropped	Joined Group	Number who Participated
G00					4
G01	8	7	6		7
G02	8	8			8
G03	11	10			10
P00					8
P01	10	10	2	1	11
P02	7	7	1	2	9
P03	7	6			6
V00					7
V01	16	10	2		10
V02	15	5	5		5
V03	15	9	4		9
J01	39	11	9		11
J02	32	15	14		15

During the group introduction to the study (for Companies G and P), the focal groups were asked to identify target groups, that is, other groups within the organization with which the focal group may have some significant amount or quality of interaction (see "Selection of Focal and Target Groups," appendix). The tradeoff between time required to complete the data forms and comprehensiveness was explained to the group. As the author gained more experience with the study, he decreased the number of target groups which he felt to be optimal. The first focal group (P01) choose nine target groups, the last focal groups (Company V, G02, and G03) choose five or six. Company V target groups were selected through discussions between the author and the OD agent.

With G03 a new procedure was introduced. The members of G03 had strong interactions with only a few other groups in the R & D lab; however, these groups differed for different individuals. Therefore, G03 participants were asked to rate G01, G02, G03, and Groups A, B, and C. They were to identify Groups A, B, and C individually, as groups with which they had significant work-related interaction: groups that made a significant difference to their work, or for whom their work made a significant difference. (See Figure 8, "Focal and Target Group Interrelations.")

Figure 8. Focal and Target Group Interrelations



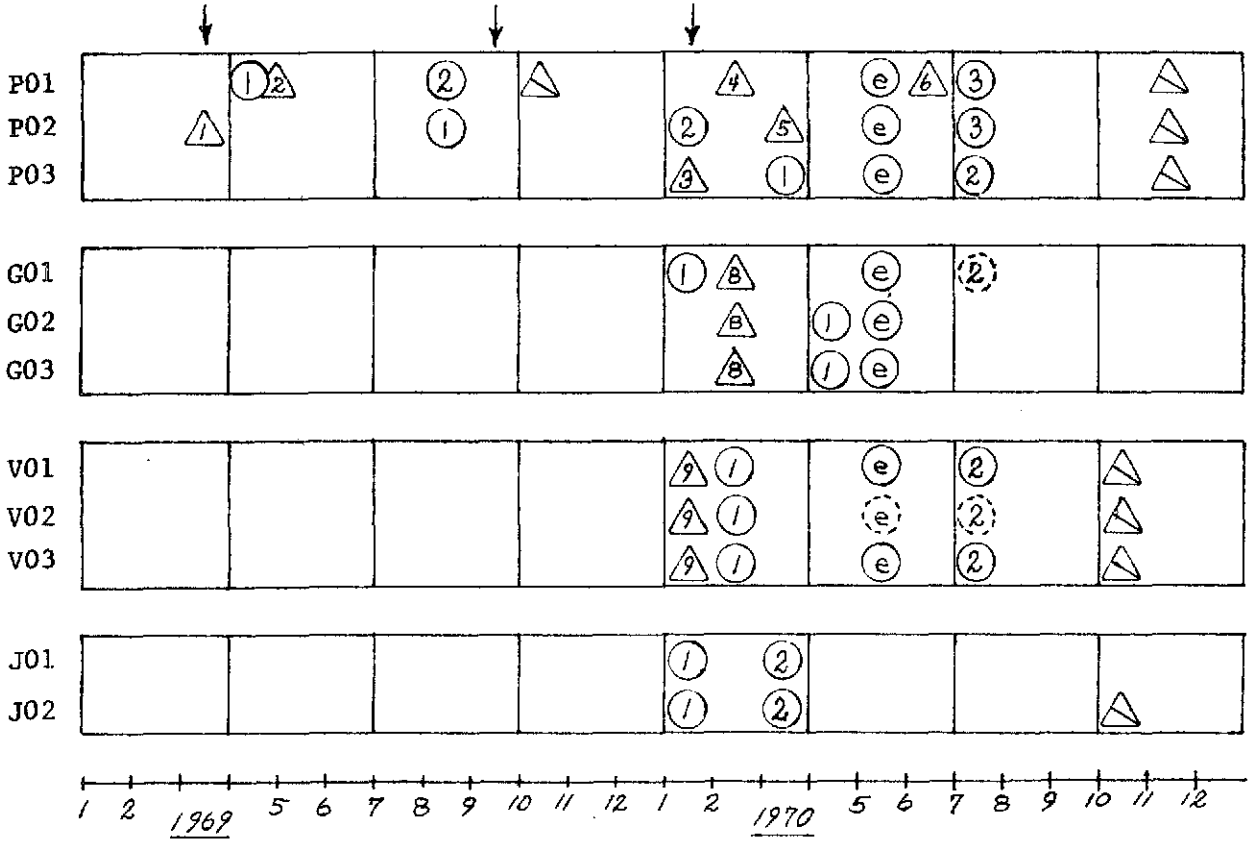
After the group meeting, the research questionnaires were mailed to the head of the focal group to distribute to the group members. (Forms for Company V were mailed directly to the OD agent, who in turn distributed them to the focal group heads.) Also enclosed was a statement of the goals of the study (see appendix). Participants completed the forms and mailed them directly (via stamped, addressed envelopes enclosed with the questionnaires) to the author. This procedure was used (rather than, for example, having the group head or OD agent collect the forms and mail them to the author) to increase the actuality and aurora of confidentiality.

The author checked over returned questionnaires. In a few cases significant portions of the questionnaire were not completed. In these instances, a copy of the incomplete scale was mailed back to the participant with a request to complete it. Individuals in Companies G and P who had not returned their initial questionnaires within about two weeks were phoned as a followup. Followup in Company V was through the OD agent.

A few months after the initial questionnaires were completed, a second set of questionnaires were sent to the participants. Note that the timing differs for the various groups (see Final Research Design, figure 9). These were the same as the first set except that they omitted the personality items (Q02) and the participant background items (Q11), and they included two new scales: work relationships (Q12) and intervening events (Q10). (Again, due to phasing of groups and questionnaire construction, some early data administrations differed slightly in the timing of Q11 and Q12. Q11 data was, in all cases, corrected to initial data administration.)

The Group Effectiveness Rating scale (Q15) was mailed to all participants and several levels of supervisors in May, 1970.

After the second questionnaire was administered to P01, a summary presentation of some of the results was made to the group (October, 1969). (They had agreed before the study began that it was permissible to feed back grouped data; no individual data was presented nor were the personality scales discussed.) The author asked the group three basic questions: 1) does the data agree with your own sense of your relations with the target groups, 2) does the data tell you anything you didn't already know, and 3) do you now feel that participation in the study is worthwhile. The participants felt that the data was valid, were interested in seeing it in "objective" form, and desired to continue with the study. Based on comments during this meeting and previous reactions from



Event Codes

1. group structure changed
2. 3-day off-site OD lab
3. key group members meet with OD agent
4. 2-day off-site MBO seminar
5. 1-day on-site team-building lab
6. 1-day on-site MBO feedback session

8. top management personnel changes
9. president's T-group ban takes effect

(n) nth administration of questionnaire

(e) administration of Q15 effectiveness rating

△ event, see event codes

◁ feedback session with group

↓ retrospective Q15 effectiveness rating

Figure 9. Final Research Design and Organizational Events

this group, the format of some of the questionnaires was improved. Previous to the open group meeting, the author asked the OD agent, in private, some open-ended questions about group interrelations at the R & D lab; his answers also validated the P01 study data.

Similar feedback presentations were given at Companies P and V after their groups completed their second sets of scales (cf. Heller, 1969). (see "Feedback Summaries, Table 33, in the appendix.) Company G did not participate in a second administration; see section 4.02 for further discussion. In general, reactions to the data were similar to those of the initial feedback to P01. In several cases, although the pattern of the data seemed valid to the participants, they felt they "already knew it." However, there was a strong "confirmation" effect--a common reaction was, "Now I know I'm not the only one feeling that way."

3.05 Final Research Design

The initial research design was made in March, 1968. After surveying the OD field and gaining experience with the field sites, an evolutionary framework was used: the basic goals of the initial design were kept but the means of achieving them were left open until the specifics of actual field sites and study progress could be known. The resulting research design was formalized in May, 1970 (see Final Research Design, figure 9).

Nine focal groups, each with five to ten members, from three companies participated in the study. One of the companies, P, had a moderately active OD program which involved all three groups; the second company, V, was using some sensitivity training; and the third company, G, had not heard of OD.

Most individuals completed two (in some cases one or three) batteries of questionnaires several months apart. These questionnaires measure demographic items, some personality traits, self-actualization, and the group climate--focusing on trust and openness. Rating of the group's effectiveness at several periods were made by the participants, some peer groups, and by several levels of their supervisors.

3.06 Description of Firms, Groups, and Individuals

Company G is a large-sized company, in the top 100 of Fortune's list of the largest 500 U.S. Industrials (May, 1970). It markets products it processes and also sells chemical intermediates. About three hundred scientists and supporting staff are employed in its R & D laboratory. The company has other related plants in the U.S.

G01, G02, and G03 are all composed of research scientists. The disciplines represented by G02 are quite similar to those of P03. All members of the G groups work fairly close to one another.

Figure 10 indicates the formal organizational structure for the three groups at Company G. Most relationships with nonparticipants have been omitted from the figure. Approximate status level is indicated by vertical displacement. Table 4 indicates, as of the first data administration, each group's mean, standard deviation, and range of educational level, age, years of employment at the company, and years in present position.

Company P is a medium sized company, in the top 300 of Fortune's top 500 Industrials. It is a chemical processing company selling both intermediates and finished products to the consumer. About a thousand scientists and supporting staff are employed in their research and development laboratory. The company has several other related plants in the U.S. P01 is concerned with administration, P02 is a technical support group, and P03 is a group of research scientists.

Company V is a service organization to its parent corporation, Company VV, which is involved in the aerospace industry. Company VV is in the top 100 of Fortune's top 500 Industrials. About 1000 people, mainly technical, are employed by Company V. The disciplines represented by Company V are similar to those of P02.

Another field site, Company J, was also used for methodological studies, but not for hypothesis testing. Company J is a church. The minister at J learned of the author's study of trust and offered his resources for testing and research. A group (J02) with some sensitivity training experiences and the Board of Directors (J01) were requested by the minister to participate in the study. J01 had 60 members of which the minister asked 39 to participate, J02 had 36 members of which 32 were requested to participate. Four women were members both of groups J01 and J02. Since all other participating members of J01 were men and all participating members of J02 women, these four were grouped in J02.

The initial design for Company J was to obtain test-retest reliability data for about a two month period. Initial participation was fairly good, 25 questionnaires were returned, but participation in the second administration was poor, 16 questionnaires were returned--mainly from J02. It was also desired to compare the average scores obtained at Company J with those obtained in the technical organizations.

Figure 10. Formal Organizational Structure of Companies G, P, and V

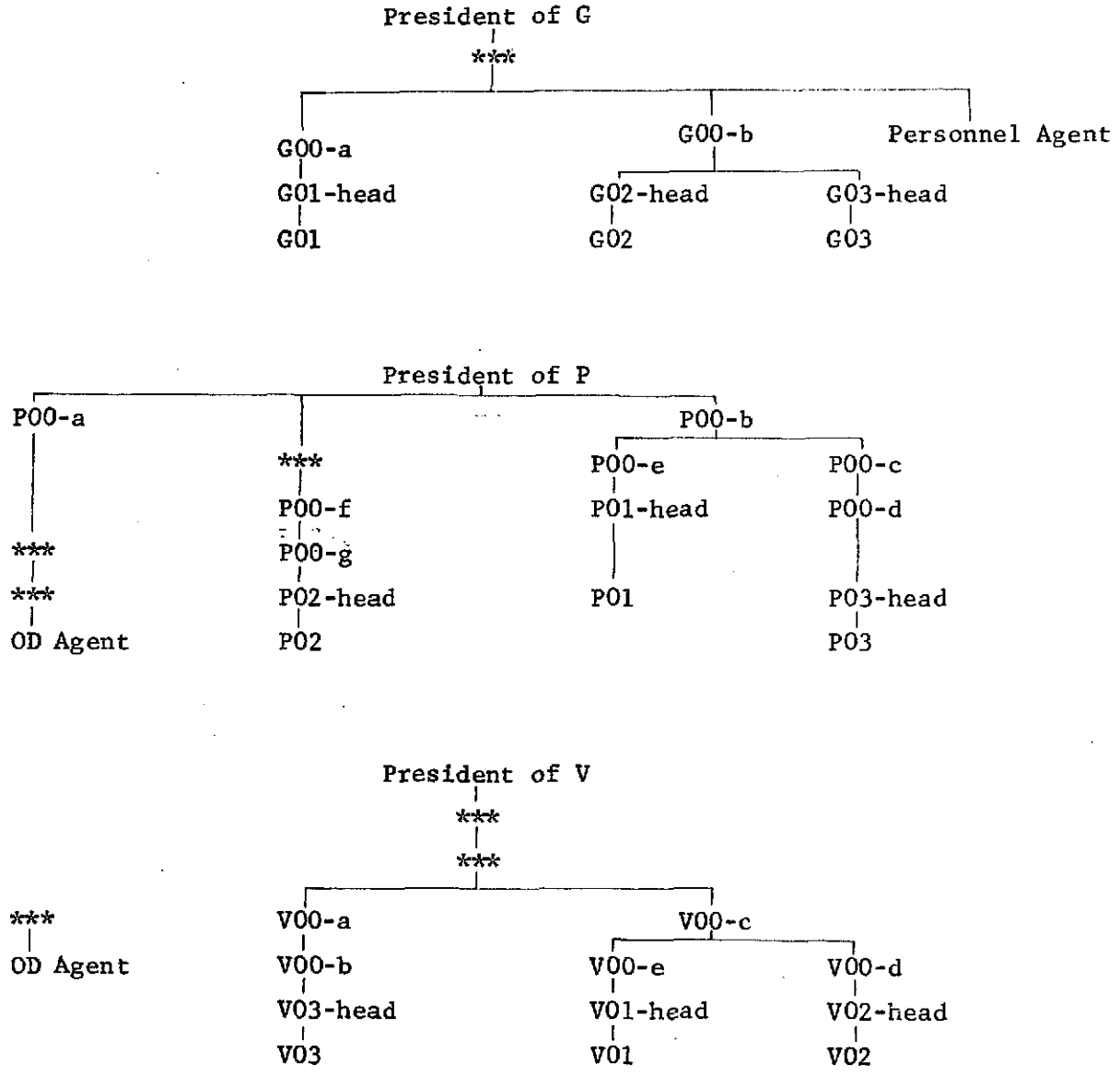


Table 4. Participants' Background Data, Averaged by Focal Groups

	G01	G02	G03	P01	P02	P03	V01	V02	V03	J01	J02
N	7	8	10	8	9	6	10	4	9	10	15
Age											
mean	39.6	36.6	40.6	43.6	33.3	47.8	26.9	25.5	30.4	46.1	49.9
S.D.	10.1	11.9	14.8	5.5	8.6	4.7	4.6	2.9	9.1	5.4	8.1
range	56	60	63	50	54	56	35	30	52	52	65
	24	22	18	34	25	41	22	23	23	33	38
Sex											
mean	1.0	1.0	1.1	1.0	1.1	1.0	1.5	1.0	1.1	1.0	2.0
S.D.	0.0	0.0	0.3	0.0	0.3	0.0	0.5	0.0	0.3	0.0	0.0
Years Education											
mean	18.3	18.1	15.9	17.4	18.1	18.5	15.8	15.7	16.5	13.1	12.8
S.D.	3.2	3.6	2.1	2.2	1.7	1.8	0.6	1.8	0.9	1.3	1.9
range	23	23	20	21	21	20	16	18	18	16	17
	14	13	12	14	16	16	14	14	16	12	8
Degree											
mean	3.9	3.5	3.0	3.4	3.4	4.5	3.0	2.7	3.2	2.1	2.1
S.D.	1.1	1.3	0.7	1.0	0.7	0.8	0.0	0.5	0.4	0.3	0.4
range	5	5	4	5	5	5	3	3	4	3	3
	2	2	2	2	3	3	3	2	3	2	1
Years in Position											
mean	4.4	2.4	7.6	4.6	2.4	4.7	1.1	0.5	2.1		
S.D.	6.1	1.7	7.4	6.0	2.3	3.4	0.5	0.5	2.5		
range	19	5	25	20	8	10	2	1	8		
	0	0	0	0	0	1	0	0	0		
Years at Company											
mean	10.7	4.9	15.3	15.7	4.4	16.7	3.6	2.3	4.4		
S.D.	11.1	3.8	9.8	7.8	3.1	4.9	3.1	1.3	3.3		
range	33	11	28	30	10	24	12	4	11		
	1	1	0	2	1	11	1	1	1		
Reportees											
mean	2.6	1.4	1.9	16.1	2.7	12.0	2.8	0.3	1.8		
S.D.	3.3	2.3	3.8	12.9	4.9	14.9	4.7	0.4	4.6		
range	8	7	12	37	15	44	16	1	14		
	0	0	0	3	0	2	0	0	0		
Hierarchical Index											
mean	86.7	83.9	87.1	54.7	88.2	66.7	86.3	89.6	91.0		
S.D.	10.4	9.9	9.5	4.1	8.6	4.7	8.3	5.9	7.9		
range	93	93	93	56	94	69	94	94	94		
	64	64	64	44	69	56	69	81	69		
Income ($ thousands)											
mean										8	14
S.D.										5.8	5.3
range										30	23
										13	2
Special											
mean	1.1	2.0	1.4	1.4	1.4	1.3	1.8	1.7	1.7		
S.D.	0.4	0.0	0.5	0.5	0.5	0.5	0.4	0.5	0.5		

3.07 Development and Selection of Scales

This research was designed so that it could be extended into a long-term study; thus self-administered questionnaires were chosen as research instruments. The questionnaires used in this study were chosen after a survey of published and some unpublished instruments proporting to measure the variables of interest.

The author searched the journals and books considered likely to discuss variables relevant to trust and openness, especially in organizational settings. In addition, prominent researchers in the area of trust were asked for references to any such instruments they knew. Also, a notice in the NTL Institute News and Reports (June, 1969) addressed a similar request to the entire NTL community. Finally, members of the Northwestern University Organization Theory Seminar (Winter, 1969) also surveyed the published literature for research instruments relevant to organizations.

Although many instruments were found (see Table 2; Kegan, 1970a), few were directly appropriate for repeated use in organizations. Scales of proven reliability and validity were desired; few published articles--and fewer unpublished ones--adequately discussed either factor. The variables measured are based on a theory of trust, organizational, and individual effectiveness summarized in Figure 1 and discussed in Chapter 2.

Three personality variables--"openness to experience," "ego strength," and "defensiveness"--are measured by the Myself scale (Q02). Time constraints did not allow the use of a full battery of personality questions; the author's background in personality theory did not support extensive study of personality variables. However, these three variables seemed to be potentially related to trust and sensitivity training. They may be related to "trust of self" and to "communication input openness" of Figure 1. The scales are from Fitzgerald's (1966a) dissertation and from the Es (Barron, 1953) and K (Meel & Hathaway, 1946) scales of the MMPI (Dahlstrom & Welsh, 1960; Welsh & Dahlstrom, 1956). The MMPI questions are in the order of their MMPI item numbers. Shortening the MMPI or changing the order of items generally is without effect on item responses or scale mean values (Dahlstrom & Welsh, 1960: 30f; cf. Levy, 1968). The Fitzgerald items precede the MMPI items in the Myself scale to lessen the offensive impact of the MMPI questions. Fitzgerald omitted twelve items from his final scale because over 80% of his college sample gave similar answers to them. These twelve items were included in the Myself scale to test if an adult population would provide better

discrimination. However, the twelve items were not included in the Q3 score, so as to facilitate comparison with Fitzgerald's norms (see Table 30, appendix).

"Self-actualization" is taken as an indicator of individual effectiveness. Bonjean & Vance's (1968) short form, based on Argyris's (1965) interview technique is used in the Job Aspects scale (Q05).

The remaining scales concentrate on more organizationally relevant variables. For these scales, several specific referenced groups are indicated. These referenced groups include standard control groups and target groups. The control groups--"people-in-general" and "your best friend"--serve as "zero points" to promote comparisons across groups, companies, and time.

Several indicators of "trust" are included in the Beliefs scale (Q07). A single Likert-type item from Kahn et al's (1964) questionnaire is buttressed by two questions, developed by Barry Staw at Northwestern focusing on the negative side of trust: "likelihood of hurt." A respect question from Kahn's study is also included in the instrument. Rosenberg's (1956) "Faith-in-People" scale was modified into a bipolar format (Morrison, Campbell, & Wolins, 1967). The several item Rosenberg scale was thought to provide a better measure of trust than the single Kahn item. The Kahn item was included partly to provide a possible link between his data and this study, and partly to investigate the adequacy of the item. The Staw items make possible some examination of nonlinearities in trust. The Rosenberg scale has been used cross-culturally (Almond & Verba, 1965) and in several American studies (Elder, 1965; Goldsen, Rosenberg, Williams, & Suchman, 1960; Nettler, 1957; Rosenberg, 1957.). The control group for the Beliefs scale is "people-in-general."

While the Beliefs scale was an attempt to measure attitudes toward the referenced groups, the Disclosure scale (Q08) is a self report measure of behavior toward these groups. It is an abridged version of Jourard's much used scale (Jourard & Lasakow, 1958). Jourard's full sixty-item scale was abridged to conserve time and to omit potentially offensive questions. Ten "work" items (questions 1-10), ten "personal" items (questions 11-20), and five general items are included. The control group for this scale is "your best friend." In addition to reports of disclosure to the referenced groups, reports of disclosure from the referenced groups are also obtained.

The confidence an individual has in various referenced groups as sources of information is measured by the Information Network scale (Q06). This scale

was developed by the author, and is based on the theory of role relationships and decision premises presented in section 2.02. That is, decision premises concerning systematic biases of information sources are utilized to convert "raw" confidence into "transformed" confidence. A distinction is also made between technical and administrative information. In organizations where the transmission and creation of information is of central importance (such as R & D labs), such a measure of confidence was thought to relate to organizational effectiveness.

The Decision Evaluation form (Q09) is a more direct indicator of organizational effectiveness. This scale was also developed by the author. Its greatest impact can be obtained after a backlog of time-series data has been accumulated (cf. Likert, Bowers, & Norman, 1969).

The "time" section of the Work Relationships scale (Q12) asks about the kind of group interdependency and was adapted from a questionnaire by Douds (1970) who in turn adapted it from Jacques (1956). The "kind" section of the scale was developed by the author in consultation with Douds.

The Group Effectiveness Rating scale (Q15) was modified from Lieberman's (personal communication, January, 1970) sensitivity training leader's rating form for group members. It reflects the necessity to explicitly determine whose goals are being used as the criterion of effectiveness (cf. section 2.04).

There are few objective indicators of organizational effectiveness for R & D groups. Although the companies did have some formal system of performance evaluation and review, this data was not made available to the author.

The Intervening Events form (Q10) and Participant's Background Data form (Q11) were written by the author. Backstrom and Horsh (1963) supplied some of the demographic items for Q11; Haire, Ghiselli, and Porter (1966: 119) provided a standardized measure of hierarchical level. Their "hierarchical index" (H-index) indicates the percentage position of the individual in the organizational hierarchy, with lower index values indicating higher positions. The H-index is the ratio of the hierarchical stratum an individual is on to the total number of levels in the organization. For example, in an organization of 10 levels, if a person has 7 levels of supervision above him, his hierarchical stratum would be 7.5 (halfway between 7 and 8) and his H-index would be 7.5/10 or 0.75.

For the first questionnaire administration, the scales were in their

numerical order: cover letter, instructions, Q2, Q5, Q6, Q7, Q8, Q9, Q11. The order for the second administration was: cover letter, instructions, Q5, Q6, Q7, Q8, Q9, Q12, Q10.[1]

The use of the Q09 scale changed with experience in the study. Initially groups were asked during their introductory meeting to identify salient decisions made within the past year. The decision "to participate in the Northwestern study" was also included for evaluation. P01 identified three decisions in addition to the participation decision, and rated them in April and August, 1969. P02 identified four decisions in addition to the participation decision, and rated them in August, 1969.

After August, 1969, the author felt that Q09 could be more useful by having each participant identify his own salient decisions to evaluate. Thus, after August, all groups were given a number of Q09 forms and asked to identify the rated decisions. These open Q09 forms were preceded by the participation decision. 170/G01, 170/P02, and 270/V had three open Q09 forms; 370/P03 had two open forms; thereafter all groups received only one open form in addition to the participation decision form.

[1]There were some slight differences in scale ordering for early administration, see section 3.04.

3.08 Scoring procedures

After a completed questionnaire was received at Northwestern, all pages were stamped with the identification code. The data were then keypunched and proofread.

Some of the scales have been used in previous studies, thus proving some data for comparison. Such "norms" were readily available for scales Q03, Q04 (Es and K), Q05, and Q07, and are listed in the appendix, Table 29. Scoring keys for the scales are given in the appendix, Table 27. Responses on Q06, Q09, Q11, and Q15 were scored directly.

The author considered blank item responses on the MMPI K scale (Q04-K) to be a symptom of defensiveness; such blank item responses were added into the total K score. Blank item responses on the MMPI Es (Q04-Es) and the Openness to Experience (Q03) scales were not considered as symptoms of the higher end of the scale and were not added into the total score. In addition to the standard MMPI scoring of the K scale, the author created another index. Possible scores on K range from 1 to 30. High K scores indicate personal defensiveness, while low scores indicate exhibition of personal defects and troubles. By computing the distance from the national mean on the K scale, an index (KD) indicating extreme high or low defensiveness is created. Dahlstrom and Welsh (1960: 48) report a mean of 13.45 for males and 12.08 for females. Since most of the participants in this study were male, 13 was chosen as the base value for the KD index. To differentiate a K score of "13" from a "no response," KD scores were shifted by one. That is, $|KD1| = |K - 13| + 1$.

The scoring of Q07 (Beliefs) was determined after methodological studies of the data. The nine-item scale was a composite of two "proven" scales and two "unproven" questions. Thus, it was considered possible that an index based on some combination of the nine questions would provide a reliable measure. Since this scale was developed for use in organizations, the "own work group" ratings (instead of "people-in-general") were used for standardization. Using the first administration data from Companies G, P, and V, various scoring possibilities were tested using the ATTANAL computer program (Morrison, Campbell, & Wolins, 1967). An internally consistent and single factored scale was obtained by using items 5 through 9. (See sections 3.10 and 4.03 for more detailed discussion of the methodological data.) Scores from each question were added to form the final trust index (scoring for questions 7 through 9 was reversed, so that all questions would score "pro-trust" responses as the higher end of the scale).

The scoring of Q08 (Disclosure) was altered from Jourard's standard procedure. Jourard scores an "X" the same as an "0"; this author felt that an "X" indicated less disclosure than an "0." Thus, while Jourard would score "2" as 2, "1" as 1, "0" as 0, and "X" as 0, in this study "2" was scored as 4, "1" as 3, "0" as 2, and "X" as 1. In addition to the "X"--"0" differentiation, scores were linearly increased to eliminate the possibility of confusing a "0" with a no response. Jourard (personal communication, September 1970) reports that such scoring transformations correlate extremely highly with his standard procedure.

The "time" section of Q12 (Work Relationships) used the numbers as recorded by the participants. It may be noted that this "time" scale approximates a logarithmic distribution. The "kind" section scored "sent" responses as 4, "intertwined" responses as 3, "received" as 2, and "independent" as 1. These "kind" data were taken as an "independency" index. Thus, scores of "independent" (I or 1) were omitted from group averages. In addition to the basic "time" and "kind" data, several indices were created. To supplement the "kind" data, the group's average number of "I's" per respondent was computed. Also, the total number of "I" ratings for each rated group was determined.

A measure of the appropriateness of the target group selection is provided by the mean "time" and "kind" scores for all the target groups averaged over the number of target groups. The smaller the "time" datum (minimum is 2) the more dependent the focal group is upon the target groups; the larger (maximum is 4), the more dependent the target groups are upon the focal group. A "kind" score of 3 indicates that the groups are "intertwined," that the work of each structures how the other works.

Another measuring instrument was the request, on the instruction sheet for the booklet of scales, for the participant to write the number of minutes that it took him to answer each section. Since the focal groups rated different numbers of target groups (the range was from 9 to 5 target groups), to compare times across focal groups, it was desirable to adjust the completion times to a common number of rated groups. (Note that rated groups include <u>all</u> groups rated: target groups, focal group, and control groups. The number of control groups varied with each scale.) Eight rated groups was chosen as a "standard." Eight was close to the number of rated groups actually used in the study; it also reflected what the author felt was an appropriate number of groups. Increased participant resistance to scale completion may be expected if too many group ratings are requested.

Completion times, corrected as necessary to 8 rated groups, for Q05, Q06, Q07, and Q08 were added to form the "standard time." To permit comparison with non-first administration data, times for Q02 were omitted from "standard time." Because of the variability in the use of Q09, it was not included in "standard time."

3.09 Data analysis procedures

Two principal stages of data analysis can be identified: 1) preparation of index scores and target group statistics and 2) hypothesis testing.[1] Computer programs written by the author were used to compute respondents' scale scores. These programs also provided statistics (number in sample, mean, median, standard deviation, and range) on each focal group's ratings of their target groups, of their own focal group, of the control groups, and on the averages over all target groups.

This form of data analysis can be useful for organizational development activities (see samples, "Feedback Summary," Table 33, in the appendix). By focusing on relations with specific groups, including their own focal group, sources of strain can be identified. If the target groups are also focal groups, that is, if the target groups also complete the scales, differences and agreements in perceptions and feelings can be seen.

The second principal stage of data analysis used standard computer programs. Correlational analyses were sufficient to test the first two main operational hypotheses (H1 and H2). Correlations and considerations of differences

[1]The programs written by the author have been deposited with the Central Files of the Program of Research on the Management of Research and Development, Department of Industrial Engineering and Management Sciences, Northwestern University. The principal standard programs used were BMD02D, BMD03D, RKSTAT, TSSA, and ATTANAL. Descriptions of these programs are available from the Vogelback Computing Center, Northwestern University. Computer analyses were done on a CDC 6400. Other analyses used a Frieden 132 electronic calculator and a Keuffel & Esser log log decitrig sliderule.

between scores were used to test the secondary hypotheses. A. Edwards (1954), Kerlinger (1964), Moroney (1956), and Siegel (1956) were consulted for statistical procedures.

The scales provided a rich array of data, subscores, and indices. In initial analyses, many of these subscores and alternative analyses were investigated. As the analysis proceded, redundant and less interesting indices were dropped. For example, "raw" and "transformed" confidence were closely correlated; therefore, some later analyses included only transformed confidence responses.

This condensation is one reason for variation in the variables presented in some tables of data. Another cause of variation is due to the nature of the computer programs. Some of the computer programs readily excluded "no response" scores, other programs did not. This difference also caused slight variation in the number of cases considered. In general, failure to exclude "no response" scores would add "noise" to the underlying relationships. Thus, if a relationship showed statistical significance with "no response" scores considered as data, the statistical test may be considered to be conservative.

Both parametric and nonparametric statistics were used in the analyses. Parametric statistics are commonly used in behavioral science research and are readily given by computer programs. However, much behavioral science research data is not interval, but only ordinal; thus, nonparametric statistics may be more proper. Throughout the stages of data analysis, parametric statistics were often compared with nonparametric ones. Generally, there was very close agreement.

Many correlations presented in this dissertation used both parametric and non parametric procedures. Tables presenting group averages, however, indicate mean values.

3.10 Evaluation of scales

In general, the scales chosen for this study performed well. The scales which had been used in previous studies (Q03, Q04-Es, Q04-K, Q07, Q08) had good reliability (see Table 5). The scales developed for this study (Q06, Q09, Q10, Q11, Q12, and Q15) were received by the participants as having good face validity.

The major difficulty encountered with the scales was their perceived length, largely a function of the repitition of questions for each rated group. To help correct for this, as experience with the study progressed, the author guided focal groups into choosing fewer target groups. For similar reasons, the initially large number of Q09's (869/P02 had five) was reduced to two: one for the decision to participate in the study and one open ended.

To conserve time and to make the selection of target groups appropriate to each respondent, the procedure finally developed for G03 is suggested for future research of this nature. Participants would be asked to rate their own group, appropriate control groups, and Groups A, B, and C. The participants would identify Groups A, B, and C individually, as groups with which they had significant work-related interaction. Space should be left in the scales for a few additional target groups, for individuals who wish to rate more.

For research, such a focus on "the three most significant target groups" would be most appropriate; it would not matter if the members of the focal group choose the same target groups. However, for organizational development studies, such a flexible procedure does incur some costs. While the quality of focal individuals' most significant work interactions is presented, relations with specific other groups are harder to determine. The difficulty of determining relations with specific other groups increases as the dispersion in choice of target groups increases. Thus, the OD agent may choose, depending on his program goals, to use either an open or a predetermined choice of target groups, or some combination.

Requesting the respondents to indicate their completion times for each scale is an extremely useful measuring device. Of 71 respondents for the first administration data, 70 gave some time data and 60 gave enough so that "standard times" could be computed. Similarly high response rates held for subsequent administrations. (Table 6 gives statistics on completion times for the various scales.) This time measure may be used both for its disguised and nondisguised meanings (Campbell, 1950). As a nondisguised measure, it indicates a direct measure of how much of the participant's time is being used for the research.

Table 5 . Reliability Data from Various Studies for Several Scales

Scale	Reliability	Sample	Study
EI56	0.81 KR-20	143 college undergraduates	Fitzgerald, 1966: 24.
	0.85 Split half, S-B correctd		
Q04-Es	0.76 odd-even	126 clinical patients	Barron, 1953: 327.
	0.72 3 mo. test-retest	30 clinical patients	
Q04-K	0.60-0.80 test-retest	various groups and periods	Dahlstrom & Welsh, 1960: 53.
Trust*	0.92 Coef reproducibility	students	Rosenberg, 1956: 690.*
	0.932 Coef reproducibility	37 alienated Pacific Coast indvls	Nettler, 1967: 676.*
	*Rosenberg's original Faith-in-people scale, not the modified Q07.		
Q08	0.94 odd-even	70 white, single college students	Jourard & Lasakow, 1958: 93.
	0.80-0.90's odd-even	15,25,35,45,60 item scales	Jourard, 1964: 176.

Study: Kegan, dissertation.

Scale	KR-20 reliability	Sample	n	mean	S.D.
EI68	0.833	1/GPV	73	35.48	8.64
EI41	0.781	1/GPV	73	19.05	6.10
EI56	0.801	1/GPV	73	28.23	7.42
EI56	0.741	170/J	26	27.27	6.51
EI56	0.738	170/J02	15	28.80	6.30
EI56	0.672	370/J02	14	29.00	5.42
Q04-Es	0.674	1/GPV	73	49.30	5.68
	0.712	170/J	26	42.58	6.37
	0.687	170/J02	15	39.93	6.01
	0.603	370/J02	14	39.43	5.21
Q04-K**	0.698	1/GPV	73	14.42	4.47
	0.464	170/J	26	11.42	3.25
	0.668	170/J02	15	11.27	3.99
	0.608	370/J02	14	11.50	3.55

**These reliabilities were computed using the TSSA program which does not score blanks on the K-scale. Kegan's program for the K-scale does score blanks.

Table 6. Scale Completion Times in Minutes*

Company G	Total	Stan	Q 02	Q 05	ST 06	ST 07	ST 08	ST 09
Number in Sample	24	21	24	23	23	22	21	21
Mean	110.8	66.8	31.6	10.8	11.8	17.5	25.7	4.9
Median	96.0	60.7	23.5	10.0	8.9	14.2	22.9	3.6
Standard Deviation	55.66	30.26	27.48	5.21	10.80	9.51	16.52	3.42
High Range	270	142	150	20	57	40	80	16
Low Range	40	28	12	3	4	6	5	2

Company P	Total	Stan	Q 02	Q 05	ST 06	ST 07	ST 08	ST 09
Number in Sample	23	20	22	21	22	22	23	19
Mean	117.1	57.5	24.1	12.2	10.2	16.5	20.4	4.6
Median	100.0	42.8	20.0	10.0	7.0	13.9	16.0	3.3
Standard Deviation	51.43	33.02	10.12	6.19	9.81	9.96	14.16	2.81
High Range	285	161	50	30	48	40	67	11
Low Range	40	26	10	3	3	7	7	1

Company V	Total	Stan	Q 02	Q 05	ST 06	ST 07	ST 08	ST 09
Number in Sample	23	21	23	22	22	22	21	16
Mean	93.7	63.0	24.2	12.3	11.1	16.3	23.4	9.0
Median	90.0	59.3	23.0	10.0	10.0	17.1	22.9	6.7
Standard Deviation	39.59	26.83	7.71	7.14	6.15	7.65	11.14	8.69
High Range	210	158	45	30	25	46	57	40
Low Range	25	32	15	5	5	6	11	2

Companies G,P&V	Total	Stan	Q 02	Q 05	ST 06	ST 07	ST 08	ST 09
Number in Sample	70	62	69	66	67	66	65	56
Mean	107.3	62.5	26.8	11.7	11.0	16.8	23.1	6.0
Median	95.0	56.1	20.0	10.0	8.9	14.8	17.8	4.6
Standard Deviation	50.43	30.33	18.10	6.26	9.20	9.11	14.28	5.68
High Range	285	161	150	30	57	46	80	40
Low Range	25	26	10	3	3	6	5	1

*First Administration Data. ST times are standardized to eight rated groups. Stan is the total standardized time for scale completion.

Such an objective measure can be useful in "defending" the research program. In addition, it can help the researcher locate problem scales. As a "disguised" measure, the time for scale completion may be used as a variable of the research. (Such a use of the data would be disguised unless the respondents knew that it would be used for that purpose.)

Participants generally enjoyed the questions of the Experience Inquiry (Q03). The "playful" set developed while answering Q03 questions probably made respondents less resistant to answering the "strange" questions of the MMPI (Q04). If such an openness measure is relevant to a research program, its inclusion at the beginning of a test booklet may be helpful. However, there were some individuals who were bothered by the forced choice nature of the scale; generally they made a choice and wrote marginal notations. (There was more resistance to the forced choice with the MMPI items.)

The 41-, 56-, and 68-item scores for the Experience Inquiry were intercorrelated for the test-retest sample at Company J (n= 16) and for the first questionnaire administration data from Companies G, P, and V (n= 73). All intercorrelations were higher than 0.933 (see Table 7). Since the intercorrelations are so high, it is suggested that the briefer 41-item scale be used unless the researcher wishes to use Fitzgerald's data as a comparison norm.

Table 7 . Experience Inquiry Intercorrelations

	GPV Sample (n = 73)			J Test-retest Sample (n = 16)		
	EI41	EI56	EI68	EI41	EI56	EI68
EI41	1.000	0.956	0.934	1.000	0.948	0.950
EI56	0.956	1.000	0.984	0.948	1.000	0.984
EI68	0.934	0.984	1.000	0.950	0.984	1.000

The MMPI questions (Q04) are unusual; they generally cause some bother to respondents. In this research project, a special introductory note was included verbally at the initial presentations to the focal groups and in writing in the cover letter for the first administration data. The basic version of this note said:

> Some of the scales were developed specifically for this study and for your group. Other scales have been used in previous research. They are included to make this study more comparable to related research efforts, and to provide supporting data for this project. Although some of the questions may seem somewhat unusual, all of the questions basically ask you what you believe to be your own or your work environment. It is important for the success of this research project that you answer the questions straightforwardly.

The author was pleased with the small number of non-responses on the MMPI items, especially considering the nature of the participants (industrial scientists and managers, not college sophomores or psychiatric patients). He attributes facilitating influences to the "playful" response set of the Experience Inquiry and to his concern for "introducing" the "somewhat unusual" questions.[1]

The author feels that openness to experience, ego strength, and defensiveness are personality variables strongly related to the goals of most sensitivity training programs. Their use in a long-term study of experiential-based organizational development should prove interesting.

The Job Aspects scale (Q05) is a quick (mean time was 11 minutes) measure of what its authors (Bonjean & Vance, 1968) term "self-actualization." Although based on Argyris's interview technique to measure self-actualization, Q05 seems more a measure of work satisfaction than of self-actualization. Q05 measures how much of what a person consciously desires he is getting at work; however, its index includes no correction for the strength of desires. Thus, an individual who reported he only wanted to be directed at work and felt he had the maximum amount of direction would score higher than an individual who had complex needs which were only being partly met. Self-actualization is generally conceived as the individual's becoming that of which he is capable, as the fulfilling of his potential (cf. Allport, 1955; Maslow, 1962; Shostrom, 1968). A second index (the sum of the desired items) could be constructed to indicate the strength of an individual's needs. A normative correction could

[1]Bennis (1966: 144) discusses the diagnostic validity of the change agent-client relationship; the humanistic psychotherapies concur (e.g., Laing, 1960; Perls, 1969; Rogers, 1961). The author felt uneasy about asking the participants to complete "personality" scales when the thrust of his research was toward more behavioral variables, especially those generally recognized as organizationally relevant. However, he was interested in measuring the personality variables. Thus, the author engaged in several "defensive" behaviors concerning the personality scales. This may be seen as one instance of research being facilitated by the researcher being aware of his ongoing feelings and his reactions to specific events (cf. Argyris, 1968c).

be applied to this second index if the researcher wished to separate "good" from "bad" needs--for example, active from passive.

Although Bonjean and Vance (1968: 304) list "all of those predispositions Argyris ... found among the employees studied" by his investigators, their list of aspects of an ideal job seems to overlook a critical predisposition: the nature of the work product. Although he performs the same task, an individual may readily feel different working in organizations that send men to the moon, process tax returns, manufacture nails, or educate students. Even stronger should be the effect of the task that the individual himself performs. Although all conditions of work may be close to ideal, the task itself may be atrocious. The addition of another item (the nature of the task itself) to the twelve aspects of Bonjean & Vance should improve the scale.

Analysis of the Job Aspects scale by item gives an appraisal of the salient desires and experienced deficiencies for the work group under study.

The Information Network scale (Q06) is directly related to a theory of organizational communication and effectiveness (see section 2.04). As such, it provides several useful diagnostic indices for the OD agent. The "transformed" confidence in a group as a source of information can be used to identify problems in the communication network. Especially for groups where the transmission and creation of information is of central importance (such as R&D or managerial groups), groups providing information with low confidence are not beneficial to the organization. Groups sending information with a high "transformed-raw" difference increase the work of receiving groups since the latter must transform the information. In addition, the chance of errorful communication is increased, especially for new receivers and others who have not learned appropriate transformations.

The scale uses a one hundred-point rating. Although most psychological scales use seven plus or minus two points, it was felt that Americans are quite used to probability distributions based on a hundred points (for example, the weather precipitation probabilities). Although such a scale reduces reliability, the cultural ingraining of the hundred-point scale makes the scale readily interpretable (cf. Peterson & Beach, 1967).

The instructions for Q06 could be improved. Several respondents indicated a raw confidence greater than the transformed confidence for a group. (This was reversed in editing the data.) Also, the "secondary" confidence instructions were often misunderstood. Elimination of the secondary confidence option (as was done for Company J) should improve the ease of use of the scale, although with a loss of information.

Table 8. Reliability Studies for Beliefs Scale *

	#1	#2	#3	#4
Reliability				
A+/B+ "split-half"	0.744	0.797	0.698	0.740
Kuder-Richardson for total	0.771	0.819	0.768	0.783
K-R for A+/total	0.574	0.693	0.708	0.764
K-R for B+/total	0.720	0.734	0.678	0.566
Inferred average inter-item correlation				
from A+/B+	0.368	0.330	0.316	0.262
from K-R for total	0.402	0.361	0.398	0.310
from K-R for A+/total	0.402	0.361	0.548	0.448
from K-R for B+/total	0.462	0.408	0.412	0.246
A+A+ average	0.461	0.374	0.554	0.483
B+B+ average	0.616	0.487	0.541	0.274
A+B+ average	0.405	0.375	0.366	0.295
total average	0.474	0.399	0.437	0.331
Corrected item total correlations				
item 1		0.485		0.584
item 2		0.612		0.181
item 3		0.560		0.518
item 5	0.520	0.533	0.490	0.525
item 6	0.563	0.559	0.629	0.686
item 7	0.576	0.562	0.527	0.507
item 8	0.612	0.579	0.515	0.497
item 9	0.555	0.546	0.534	0.466
Single-factoredness				
Lawley chi-square	11.3	183.5	33.2	127.6
Lawley df	5	20	5	20
Lawley p	<0.98	>0.99	>0.99	>0.99
Wolins index	0.983	0.884	0.920	0.865
Wolins sigma m	0.432	0.301	0.409	0.357
Wolins sigma of residuals	0.031	0.077	0.056	0.078
Wolins expected sigma	0.024	0.035	0.025	0.035

*See Morrison, Campbell, & Wolins (1967) for a discussion of the ATTANAL computer program and detailed explanation of these statistics.

#1: rated group= Focal, Items 5-9. n= 71.
#2: rated group= Focal, Items 1-3,5-9. n= 71.
#3: rated group= People-in-general, Items 5-9. n= 72.
#4: rated group= People-in-general, Items 1-3,5-9. n= 72.

The Beliefs scale (Q07) provides a quite reliable, single-factored measurement of trust. Table 8 reports detailed reliability statistics from the ATTANAL computer program (Morrison, Campbell, & Wolins, 1967) on four sets of first administration Beliefs data. Ratings of the "focal group" and of "people-in-general" are included using all "trust" questions (omitting question 4, a "respect" item) and using only the finally selected trust index questions, 5 through 9. Morrison, Campbell, and Wolins (1967) provide standards against which these reliability statistics can be compared. They suggest the best indicator of reliability as the "Kuder-Richardson for total." For the trust index (only items 5-9) these reliabilities are fairly good for a short test: 0.77 for both "focal group" and "people-in-general." An inferred average inter-item correlation of 0.20 is considered as "highly successful." This statistic, indicating the reliability of a one-item version of the test, is quite good for the Beliefs data: 0.40. Since the A+A+ and B+B+ correlations average higher than the A+B+ correlations, some response set or direction-of-wording effects are indicated. In total however, the trust index of the Beliefs scale passes "some minimal tests of cohesiveness."

The scale is also single-factored. Although the Lawley chi-square is quite significant ($p>0.97$), this can be expected "even for very good scales ... especially ... for large numbers of cases ...." The Wolins index was developed to be independent of the number of cases. It is suggested that 0.75 be taken as a lower bound of acceptable unidimensionality. For the trust index, excellent Wolins indices of 0.98 and 0.92 are found for "focal group" and for "people-in-general."

Tables 9 and 10 present the correlations among the questions, their means, and their standard deviations for the four sets of data. It can be seen that Kahn et al.'s trust question (Belief scale question 1) correlates only 0.35 with the trust index for "focal group"; their respect question (Belief scale question 4) correlates 0.50 with the trust index; and the two Kahn questions correlate 0.59 with each other. (The statistics for people-in-general are 0.50, 0.42, and 0.40.) Although Kahn et al. (1964) term it a "trust" question, it appears to measure primarily "helpfulness."

The Beliefs scale includes nine questions, only five of which are used in its trust index. The remaining four were included for methodological research on the measurement of trust. If only a measure of trust is needed in a research program, it is suggested that only the five questions of the trust index be presented to the participants.

TABLE 9 . Q07 ATTANAL ANALYSIS= PEOPLE

NUMBER OF VARIABLES = 16

NUMBER OF SUBJECTS IN THIS GROUP = 72

VARIABLE	MEAN	STD. DEV.	VARIANCE	SUM	SUM OF SQS.
ITEM01	2.889	.865	.748	208.00	654.00
ITEM02	3.306	.866	.750	238.00	840.00
ITEM03	2.986	.722	.521	215.00	679.00
ITEM05	3.861	1.166	1.361	278.00	1170.00
ITEM06	3.194	1.349	1.821	230.00	864.00
ITEM07	3.194	1.241	1.539	230.00	844.00
ITEM08	3.069	1.377	1.897	221.00	813.00
ITEM09	2.611	1.306	1.706	188.00	612.00
A POS.	12.931	3.230	10.432	931.00	12779.00
B POS.	12.181	3.199	10.235	877.00	11409.00
GRAND	25.111	5.728	32.804	1808.00	47730.00
$\Sigma(5\text{-}9)$	15.931	4.646	21.587	1147.00	19805.00
ITEM 01	2.889	.865	.748	208.00	654.00
ITEM 04	3.125	.691	.477	225.00	737.00
$\Sigma(1\text{-}3,5\text{-}9)_{FOCAL}$	31.583	6.823	46.556	2274.00	75126.00
$\Sigma(5\text{-}9)_{FOCAL}$	20.042	4.802	23.055	1443.00	30557.00

CORRELATION MATRIX.

VAR	ITEM01	ITEM02	ITEM03	ITEM05	ITEM06	ITEM07	ITEM08	ITEM09
ITEM01	1.000	.290	.652	.333	.502	.309	.385	.248
ITEM02	.290	1.000	.390	.182	.141	.062	-.006	-.006
ITEM03	.652	.390	1.000	.349	.509	.239	.228	.114
ITEM05	.333	.182	.349	1.000	.554	.301	.304	.306
ITEM06	.502	.141	.509	.554	1.000	.532	.372	.379
ITEM07	.309	.062	.239	.301	.532	1.000	.346	.378
ITEM08	.385	-.006	.228	.304	.372	.346	1.000	.509
ITEM09	.248	-.006	.114	.306	.379	.378	.509	1.000
A POS.	.743	.290	.737	.760	.866	.467	.419	.361
B POS.	.465	.290	.343	.422	.559	.708	.771	.772
GRAND	.679	.325	.607	.664	.801	.659	.667	.635
$\Sigma(5\text{-}9)$	.496	.100	.399	.669	.788	.706	.716	.720
ITEM 01	1.000	.290	.652	.333	.502	.309	.385	.248
ITEM 04	.401	.312	.484	.511	.502	.185	.228	.117
$\Sigma(1\text{-}3,5\text{-}9)_{FOCAL}$	.111	.115	.202	.032	.257	.105	.120	.157
$\Sigma(5\text{-}9)_{FOCAL}$	.130	.109	.216	.094	.347	.148	.200	.194

VAR	A POS.	B POS.	GRAND	$\Sigma(5\text{-}9)$	ITEM 01	ITEM 04	$\Sigma(1\text{-}3,5\text{-}9)_F$	$\Sigma(5\text{-}9)_F$
ITEM01	.743	.465	.679	.496	1.000	.401	.111	.130
ITEM02	.290	.290	.325	.100	.290	.312	.115	.109
ITEM03	.737	.343	.607	.399	.652	.484	.202	.216
ITEM05	.760	.422	.664	.669	.333	.511	.032	.094
ITEM06	.866	.559	.801	.788	.502	.502	.257	.347
ITEM07	.467	.708	.659	.706	.309	.185	.105	.148
ITEM08	.419	.771	.667	.716	.385	.228	.120	.200
ITEM09	.361	.772	.635	.720	.248	.117	.157	.194
A POS.	1.000	.587	.892	.793	.743	.610	.194	.262
B POS.	.587	1.000	.890	.903	.465	.302	.187	.252
GRAND	.892	.890	1.000	.951	.679	.513	.214	.288
$\Sigma(5\text{-}9)$	.793	.903	.951	1.000	.496	.424	.190	.277
ITEM 01	.743	.465	.679	.496	1.000	.401	.111	.130
ITEM 04	.610	.302	.513	.424	.401	1.000	.110	.177
$\Sigma(1\text{-}3,5\text{-}9)_{FOCAL}$	.194	.187	.214	.190	.111	.110	1.000	.947
$\Sigma(5\text{-}9)_{FOCAL}$	.262	.252	.288	.277	.130	.177	.947	1.000

Table 10. Q07 ATTANAL Analysis: Focal Group
NUMBER OF VARIABLES = 14

NUMBER OF SUBJECTS IN THIS GROUP = 71

VARIABLE	MEAN	STD. DEV.	VARIANCE	SUM	SUM OF SQS.
ITEM01	4.127	.925	.855	293.00	1269.00
ITEM02	3.817	.931	.866	271.00	1095.00
ITEM03	3.761	.918	.842	267.00	1063.00
ITEM05	4.746	.603	.363	337.00	1625.00
ITEM06	4.282	1.031	1.062	304.00	1376.00
ITEM07	3.915	1.239	1.536	278.00	1196.00
ITEM08	3.901	1.364	1.862	277.00	1211.00
ITEM09	3.479	1.382	1.910	247.00	993.00
A POS.	16.915	2.551	6.507	1201.00	20771.00
B POS.	15.113	3.705	13.730	1073.00	17177.00
GRAND	32.028	5.725	32.771	2274.00	75126.00
Σ(5-9)	20.324	4.191	17.565	1443.00	30557.00
ITEM 01	4.127	.925	.855	293.00	1269.00
ITEM 04	3.944	.773	.597	280.00	1146.00

CORRELATION MATRIX.

R MAT SECTION 1

	ITEM01	ITEM02	ITEM03	ITEM05	ITEM06	ITEM07	ITEM08	ITEM09	A POS.	B POS.	GRAND	Σ(5-9)	ITEM 01	ITEM 04
item 1	1.000	.542	.609	.315	.292	.184	.259	.287	.774	.400	.604	.350	1.000	.590
item 2	.542	1.000	.701	.374	.323	.420	.301	.358	.667	.636	.709	.473	.542	.542
item 3	.609	.701	1.000	.250	.314	.309	.335	.261	.766	.500	.665	.399	.609	.626
item 5	.315	.374	.250	1.000	.461	.430	.403	.319	.627	.505	.607	.621	.315	.337
item 6	.292	.323	.314	.461	1.000	.354	.487	.435	.732	.541	.677	.719	.292	.397
item 7	.184	.420	.309	.430	.354	1.000	.494	.458	.423	.792	.701	.756	.184	.264
item 8	.259	.301	.335	.403	.487	.494	1.000	.442	.507	.774	.726	.795	.259	.401
item 9	.287	.358	.261	.319	.435	.458	.442	1.000	.449	.779	.704	.762	.287	.454
A pos.	.774	.667	.766	.627	.732	.423	.507	.449	1.000	.663	.875	.708	.774	.679
B pos.	.400	.636	.500	.505	.541	.792	.774	.779	.663	1.000	.943	.949	.400	.541
Grand	.604	.709	.665	.607	.677	.701	.726	.704	.875	.943	1.000	.930	.604	.653
Σ(5-9)	.350	.473	.399	.621	.719	.756	.795	.762	.708	.949	.930	1.000	.350	.504
item 1	1.000	.542	.609	.315	.292	.184	.259	.287	.774	.400	.604	.350	1.000	.590
item 4	.590	.542	.626	.337	.397	.264	.401	.454	.679	.541	.653	.504	.590	1.000

Table 11 presents the ATTANAL reliability data for the Disclosure scale (Q08). Since the Disclosure scale is not bipolar, two surrogate models were investigated. The "alternate" model assigned A+ values to each odd question and B+ values to each even question. The "w/p" model assigned A+ values to the work subscale questions (1-10) and to questions 21, 23, and 25. B+ values were assigned to the personal subscale questions (11-20) and to questions 22 and 24. Response set was expected to be maximized under the "w/p" model.

Six sets of Disclosure data are presented in the table: data under both models, self and other disclosure, and "focal group" and "best friend" ratings. The Kuder-Richardson reliabilities are all high (0.84 to 0.95). Most of the inferred average inter-item correlations are also high (0.17, 0.29, 0.29, 0.42, 0.45, 0.45). As expected, the A+A+, B+B+, and A+B+ correlations do indicate response set under the "w/p" model but not under the "alternate" model. However, since the A+ and B+ value assignments were artificial, this indicates not response set but subscale cohesiveness. In spite of the presence of two subscales, the Disclosure scale is still fairly single-factored. Wolins indices range from 0.86 to 0.91.

An examination of the ATTANAL reliabilty data for the Beliefs and Disclosure scales indicates that the scales become "tighter" as the rated target becomes more specific: from "people-in-general" to "focal group" to "best friend."

Returning to the Disclosure scale, Table 12 presents the means and standard deviations for each question and their intercorrelations. It also reports Disclosure subscore intercorrelations for both "focal group" and "best friend." For each rated group, nine subscores are intercorrelated: intercorrelations are presented for the work, personal, and total scores and for self, other, and (self-other) disclosure difference. Considering ratings of the "focal group," self and other disclosure correlate 0.85, the work and personal subscales correlate 0.95, and the (self-other) difference correlates -0.52 with total other disclosure.

Although the Disclosure scale provides methodologically sound data, its continued use in longitudinal field studies of organizations is not suggested. Considerable time is necessary to complete the scale (mean of 23 minutes for eight rated groups for both self and other disclosure). More importantly, respondents feel that the scale is highly redundant. While the Disclosure scale may be more useful for other kinds of research, other measures of behavioral communication openness are suggested for organizational studies. The detailed nature of the work and personal subscales may be

Table 11. Reliability Studies for Disclosure Scale *

	#1	#2	#3	#4	#5	#6
Reliability						
A+/B+ "split-half"	0.965	0.662	0.973	0.887	0.963	0.973
Kuder-Richardson for total	0.910	0.839	0.954	0.954	0.911	0.948
K-R for A+/total	0.814	0.765	0.913	0.978	0.824	0.900
K-R for B+/total	0.831	0.779	0.903	0.967	0.824	0.892
Inferred average inter-item correlation						
from A+/B+	0.523	0.073	0.590	0.238	0.509	0.593
from K-R for total	0.289	0.173	0.452	0.452	0.290	0.421
from K-R for A+/total	0.252	0.200	0.446	0.773	0.264	0.410
from K-R for B+/total	0.291	0.227	0.437	0.708	0.281	0.408
A+A+ average	0.256	0.348	0.449	0.491	0.375	0.511
B+B+ average	0.297	0.346	0.445	0.536	0.446	0.497
A+B+ average	0.315	0.247	0.469	0.411	0.425	0.527
total average	0.296	0.295	0.459	0.459	0.417	0.515
Corrected item total correlations						
items 1-10, high range	0.633	0.632	0.700	0.700	0.711	0.737
items 1-10, low range	0.354	0.353	0.511	0.511	0.406	0.490
items 11-20, high range	0.655	0.686	0.783	0.783	0.588	0.800
items 11-20, low range	0.341	0.318	0.609	0.609	0.266	0.496
items 21-25, high range	0.574	0.443	0.748	0.748	0.589	0.774
items 21-25, low range	0.417	0.198	0.644	0.644	0.493	0.584
Single-factoredness						
Lawley chi-square	1228	1227	2193	2193	2020	2934
Lawley df	275	275	275	275	275	275
Lawley p	>0.99	>0.99	>0.99	>0.99	>0.99	>0.99
Wolins index	0.861	0.861	0.905	0.905	0.886	0.912
Wolins sigma m	0.330	0.330	0.472	0.472	0.439	0.526
Woling sigma of residuals	0.096	0.096	0.076	0.076	0.083	0.068
Wolins expected sigma	0.058	0.058	0.034	0.034	0.024	0.034

*See Morrison, Campbell, & Wolins (1967) for a discussion of the ATTANAL computer program and detailed explanation of these statistics.

#1: rated group= Focal, Self disclosure, A+B+ model= alternate.
#2: rated group= Focal, Self disclosure, A+B+ model= w/p.
#3: rated group= Friend, Self disclosure, A+B+ model= alternate.
#4: rated group= Friend, Self disclosure, A+B+ model= w/p.
#5: rated group= Focal, Other disclosure, A+B+ model= alternate.
#6: rated group= Friend, Other disclosure, A+B+ model= alternate.
n= 67 for all groupings.

Table 12. Q08 ATTANAL Analysis

Disclosure Subscore Intercorrelations

Rated group= Own work group (focal group)

	S-W	S-P	S-T	(S-O)W	(S-O)P	(S-O)T	O-W	O-P	O-T
S-W	1.000	0.495	0.825	0.231	0.089	0.185	0.686	0.422	0.610
S-P	0.495	1.000	0.851	-.306	0.150	-.146	0.654	0.868	0.804
S-T	0.825	0.851	1.000	-.086	0.109	0.001	0.773	0.748	0.855
(S-O)W	0.231	-.306	-.086	1.000	0.332	0.833	-.549	-.455	-.506
(S-O)P	0.089	0.150	0.109	0.332	1.000	0.735	-.172	-.361	-.288
(S-O)T	0.185	-.146	0.001	0.833	0.735	1.000	-.464	-.507	-.518
O-W	0.686	0.654	0.773	-.549	-.172	-.464	1.000	0.703	0.902
O-P	0.422	0.868	0.748	-.455	-.361	-.507	0.703	1.000	0.903
O-T	0.610	0.804	0.855	-.506	-.288	-.518	0.902	0.903	1.000

Rated group= Best friend

	S-W	S-P	S-T	(S-O)W	(S-O)P	(S-O)T	O-W	O-P	O-T
S-W	1.000	0.635	0.882	0.069	-.083	0.033	0.884	0.620	0.800
S-P	0.635	1.000	0.913	-.211	-.043	-.154	0.680	0.949	0.892
S-T	0.882	0.913	1.000	-.081	-.056	-.061	0.846	0.872	0.940
(S-O)W	0.069	-.211	-.081	1.000	0.419	0.846	-.406	-.329	-.363
(S-O)P	-.083	-.043	-.056	0.419	1.000	0.812	-.273	-.354	-.329
(S-O)T	0.033	-.154	-.061	0.846	0.812	1.000	-.367	-.400	-.398
O-W	0.884	0.680	0.846	-.406	-.273	-.367	1.000	0.722	0.903
O-P	0.620	0.949	0.872	-.329	-.354	-.400	0.722	1.000	0.939
O-T	0.800	0.892	0.940	-.363	-.329	-.398	0.903	0.939	1.000

Self and Other Disclosure, and their difference.
Work, Personal, and Total scores

Self-Disclosure, Alternate Model

	Focal Group		Best Friend	
Var	Mean	S.D.	Mean	S.D.
Item 01	2.896	0.526	3.448	0.658
Item 02	3.000	0.577	3.463	0.611
Item 03	2.985	0.590	3.582	0.607
Item 04	2.746	0.586	3.164	0.709
Item 05	3.030	0.696	3.418	0.631
Item 06	3.015	0.615	3.328	0.660
Item 07	2.866	0.716	3.313	0.656
Item 08	2.627	0.735	3.269	0.665
Item 09	2.776	0.794	3.493	0.683
Item 10	3.000	0.674	3.433	0.609
Item 11	2.478	0.682	3.164	0.709
Item 12	2.403	0.719	3.119	0.749
Item 13	1.806	0.557	2.657	0.827
Item 14	2.552	0.724	3.254	0.823
Item 15	2.194	0.701	2.881	0.826
Item 16	2.224	0.623	2.851	0.821
Item 17	2.134	0.649	2.866	0.796
Item 18	2.463	0.703	3.104	0.800
Item 19	2.507	0.704	3.358	0.732
Item 20	2.478	0.725	3.104	0.837
Item 21	2.552	0.681	3.403	0.740
Item 22	2.910	0.712	3.582	0.581
Item 23	2.821	0.815	3.433	0.657
Item 24	2.925	0.785	3.552	0.610
Item 25	2.582	0.700	3.388	0.695
A Pos.	33.627	4.935	42.404	6.474
B Pos.	32.343	4.857	39.224	5.949
Grand	65.970	9.625	81.627	12.258
S-W	28.940	4.485	33.910	4.804
S-P	23.239	4.486	30.358	6.164
S-T	65.970	9.625	81.627	12.258
(S-O)W	0.612	3.904	0.627	2.461
(S-O)P	-.567	2.388	0.075	2.069
(S-O)T	0.299	5.836	0.955	4.554
O-W	28.328	5.221	33.284	5.245
O-P	23.806	4.755	30.284	6.585
O-T	65.672	11.250	80.672	13.335

replaced by a question or two (although, this would probably reduce reliability). Even more useful than self reports of behavior would be behavioral observations. If the OD agent were working with the groups, he could be one source for such data. However, behavioral and unobtrusive measures of openness are infrequently reported in the research literature; the development of additional such measures would be helpful.

The theory of decision evaluation and organizational effectiveness presented in section 2.04 is directly reflected in the Decision Evaluation scale (Q09). In section 2.04 it was suggested that over a period of time, repeated measures on Q09 would provide an indication of organizational effectiveness. This research project did not permit such a long period. More importantly, the participants did not seem particularly concerned with such measures. In the mode of use finally evolved during the study, open-ended completion of Q09 gives an indication of the participants' satisfaction with past organizational decisions (cf. the Ipsative Consequence Model of Rosen & Komorita, 1969). If he is generally satisfied, it is likely he will choose a positive decision to rate; if dissatisfied, a negative one. Q09 can suffer from perceived redundancy. Thus, limitation of number of rated groups and of the number of Q09 forms is important. As the "Evaluation of Decisions" note indicates (see appendix), this form can be integrated into normal organizational operations in a number of ways.

By using this form to evaluate the participation in the research study itself, the participants are encouraged to express their feelings about the research and the researcher is provided important data.

The Intervening Events form (Q10), although simple, also gives the participants an opportunity to respond to the research and researcher in their own manner, rather than through the structured questions of the other scales. In addition, it helps the researcher keep aware of significant background events.

The Participants Background Data form (Q11) and the Work Relationships scale (Q12) seem useful, although work backlogs may cause important work relationships to receive lengthy "time" ratings on Q12 (Group P01 noted this in connection with their Q12 data). The Group Effectiveness Ratings scale (Q15) is straightforward; however, its data are no more valid than the ratees' judgments (see section 4.04; cf. Kavanagh, MacKinney, & Wolins, in press).

The test-retest reliability and score stability of many of the scales was also investigated. Table 13 presents parametric and nonparametric test-retest statistics for a three month interval at Company J. The personality measures (EI41, EI56, EI68, Es, K, and KD1) all show good stability (little drift in means) and reliability. The Beliefs and Information Network scales also, in general, indicated good results. However, the nonsignificant and negative reliability (r= -0.195, rho= -0.358) for trust of focal group disturbed the author.

Table 13. Parametric and Nonparametric Test-Retest Statistics for Company J, Three Months.

Variable	$mean_1$	$mean_2$	$mean_{2-1}$	$S.D._1$	$S.D._2$	$S.D._{2-1}$	n	r	rho	n	t
EI41	20.12	20.12	0.00	5.64	6.20	0.56	16	0.865**			
EI56	27.56	27.44	-0.12	6.69	6.91	0.22	16	0.818**			
EI68	35.06	34.94	-0.12	7.44	8.36	0.92	16	0.868**			
Es	40.94	40.88	-0.06	6.67	6.27	-0.40	16	0.831**			
K	10.69	12.19	1.50	3.36	4.83	1.47	16	0.574**			
KD1	4.31	4.81	0.50	2.30	2.93	0.63	16	0.455*			
Raw Confidence People	38.12	43.60	5.48	23.23	19.16	-4.07	14	0.439	0.504	16	2.184*
Trans Confidence People	53.12	60.71	7.59	28.86	21.56	-7.30	14	0.671**	0.577	16	2.641*
Raw Confidence Friend	64.69	73.93	9.24	33.49	23.63	-9.86	14	0.186	0.577	16	2.645*
Trans Confidence Friend	79.38	90.71	11.33	33.81	14.53	-19.28	14	0.212	0.546	16	2.439*
Raw Confidence Focal	42.81	48.93	6.12	27.51	23.47	-4.04	14	0.398	0.532	16	2.348*
Trans Confidence Focal	58.75	67.14	8.39	29.47	19.88	-9.59	14	0.542*	0.594	16	2.765*
Trust People	14.27	13.31	-0.96	5.96	5.21	-0.75	15	0.450*	0.461	16	1.945
Trust Focal	20.87	19.94	-0.93	3.29	3.28	-0.01	15	-0.195	-0.358	16	-1.434
Kahn Trust People	2.12	2.94	0.82	0.96	1.06	0.10	16	0.795**	0.800	16	4.995**
Kahn Trust Focal	2.88	3.06	0.18	0.62	0.93	0.31	16	0.478*	0.458	16	1.928
Respect People	2.94	3.06	0.12	1.00	1.00	0.00	16	0.808**	0.741	16	4.129**
Respect Focal	3.44	3.25	-0.19	0.81	0.86	0.05	16	0.693**	0.646	16	3.170**
Self Disclosure-W Friend	31.00	33.94	2.94	7.62	4.46	-3.16	14	-0.057	-0.028	16	-0.106
Self Disclosure-P Friend	30.43	32.31	1.88	7.57	5.94	-1.63	14	0.108	0.370	16	1.492
Self Disclosure-T Friend	78.00	83.50	5.50	18.31	10.78	-7.53	14	-0.091	0.144	16	0.547
Self Disclosure-W Focal	19.57	20.44	0.87	4.85	1.82	-3.02	14	0.488*	0.583	16	2.685*
Self Disclosure-P Focal	17.79	18.88	1.09	3.12	2.45	-0.67	14	0.433	0.444	16	1.857
Self Disclosure-T Focal	47.50	49.81	2.31	6.94	5.18	-1.76	14	0.552*	0.526	16	2.314*
Self Disclosure-T (Frnd-Fc1)	30.50	33.69	3.19	19.52	11.69	-7.83	14	-0.106	-0.062	16	-0.233
Othr Disclosure-W Friend	31.00	34.44	3.44	7.75	4.21	-3.54	14	-0.135	-0.082	16	-0.308
Othr Disclosure-P Friend	30.00	31.06	1.06	7.61	5.97	-1.64	14	-0.015	0.299	16	1.173
Othr Disclosure-T Friend	77.64	82.81	5.17	18.53	10.87	-7.66	14	-0.126	0.152	16	0.574
Othr Disclosure-W Focal	21.07	20.94	-0.13	4.27	3.21	-1.06	14	0.683**	0.454	16	1.906
Othr Disclosure-P Focal	20.21	20.25	0.04	5.41	3.32	-2.09	14	0.695**	0.588	16	2.721*
Othr Disclosure-T Focal	51.79	51.81	0.02	11.81	7.71	-4.10	14	0.782**	0.674	16	3.415**
Othr Disclosure-T (Frnd-Fc1)	25.86	31.00	5.14	17.56	12.69	-4.87	14	-0.167	0.052	16	0.194

Significance tests are one-tailed: *$p < 0.05$, **$p < 0.01$

The focal group for Company J was its congregation. The other rated groups were more closely defined: two women's groups, the Church Board, and the Minister. Reliabilities for these four rated groups were also negative and nonsignificant: -0.010, -0.383, -0.248, -0.163. Discussion with the minister and with the principal group contributing retest data (J02) indicated some possible explanations. The group used the first questionnaire administration as a stimulus for discussing trust in a later meeting--a meeting before the second administration. It is thus possible that the participants changed their conceptions about trust and openness. During the period between the two administrations, the national economic pressures were felt by several members of the groups--some lost their jobs. In addition, personal difficulties arose and may have altered the feelings of some. Finally, original trust (and related variable) scores were high for all the church groups. Halo and social desirability effects may have contributed to inflated scores. If the initial scores were inflated, this could reduce reliability.

To try to further test the temporal reliability of the scales, Company V data was chosen. Few potentially contaminating events had occured at Company V (see field observations, section 4.02) and their retest sample of 14 was sufficiently large. Table 14 indicates the six month test-retest statistics for Company V. The trust scores show good reliability; the confidence, Kahn trust, respect, and disclosure scores generally show good reliability, but are dependent on which group is being rated.

The equivocal test-retest statistics make interpretation difficult. Another difficulty is the potential for tautology: if the reliabilities are high, background conditions were stable; if the reliabilities are low, background conditions must have changed. Additional studies could, of course, be made with more tightly controlled conditions. However, the inclusion of previously tested scales combined with fairly extensive attention to methodological considerations makes some interpretation possible.

In the judgment of the author the following indices probably have good test-retest reliability: EI41, EI56, EI68, Es, K, KD1, Job Aspects, Transformed Confidence, Trust, and Kahn Trust. The Disclosure scores may have stability.

Table 14 . Parametric and Nonparametric Test-Retest Statistics for Company V, Six Months.

Variable	$mean_1$	$mean_2$	$mean_{2-1}$	$S.D._1$	$S.D._2$	$S.D._{2-1}$	n	r	rho	n	t
Standard time	52.54	49.27	-3.27	12.55	15.10	2.55	11	0.282	0.494	14	1.971
Self-Actualization	77.29	72.00	-5.29	11.95	11.32	-0.63	14	0.447	0.250	14	0.893
Trans Confidence People	73.21	67.86	-5.35	9.32	16.26	6.94	14	0.227	0.290	14	1.048
Trans Confidence Friend	87.36	84.86	-2.50	8.04	13.56	5.52	14	0.592**	0.610	14	2.664*
Trans Confidence Focal	83.21	79.62	-3.59	11.54	12.49	0.95	13	0.664**	0.543	14	2.242*
Trans Confidence Tar Avg	70.07	54.29	-15.78	12.58	16.61	4.03	14	0.446	0.445	14	1.723
Trust People	16.86	13.64	-3.22	4.44	3.56	-0.88	14	0.619**	0.564	14	2.367*
Trust Focal	20.15	18.85	-1.30	6.16	4.60	-1.56	13	0.821**	0.791	14	4.482**
Trust Tar Avg	17.00	14.71	-2.29	4.57	3.27	-1.30	14	0.571**	0.632	14	2.823*
Kahn Trust People	3.00	2.64	-0.36	0.55	0.50	-0.05	14	0.558**	0.558	14	2.328*
Kahn Trust Focal	4.00	3.85	-0.15	1.00	0.80	-0.20	13	0.520**	0.791	14	4.482**
Kahn Trust Tar Avg	2.93	2.86	-0.07	0.47	0.66	0.19	14	-0.035	-0.028	14	-0.096
Respect People	3.21	3.00	-0.21	0.70	0.78	0.08	14	0.701**	0.628	14	2.793*
Respect Focal	4.00	3.62	-0.38	0.91	0.65	-0.26	13	0.281	0.384	14	1.442
Respect Tar Avg	3.21	3.14	-0.07	0.70	0.77	0.07	14	0.224	0.178	14	0.625
Self Disclosure-W Friend	34.15	34.15	0.00	4.98	4,38	-0.60	13	0.756**	0.831	13	4.955**
Self Disclosure-P Friend	32.23	30.54	-1.69	4.88	6.27	1.39	13	0.619*	0.588	13	2.412*
Self Disclosure-T Friend	83.92	81.38	-2.54	10.65	12.33	1.68	13	0.833**	0.792	13	4.299**
Self Disclosure-W Focal	29.62	26.85	-2.77	5.62	4.02	-1.60	13	0.451	0.418	13	1.526
Self Disclosure-P Focal	24.38	21.85	-2.53	6.23	5.54	-0.69	13	0.403	0.571	13	2.308*
Self Disclosure-T Focal	67.85	60.77	-7.08	12.58	11.46	-1.12	13	0.456	0.512	13	1.976
Self Disclosure-W Tar Avg	17.15	15.85	-1.30	2.44	2.15	-0.29	13	0.005	-0.053	13	-0.175
Self Disclosure-P Tar Avg	14.54	13.46	-1.08	3.18	3.28	0.10	13	0.182	0.129	13	0.431
Self Disclosure-T Tar Avg	39.54	36.69	-2.85	6.02	6.12	0.10	13	0.143	-0.024	13	-0.079
Self Disclosure-T (Frnd-Fcl)	17.42	22.33	4.91	12.94	10.78	-2.16	12	0.607*	0.674	13	3.026 *

Significance tests are one-tailed: *$p < 0.05$, **$p < 0.01$

3.11 Chapter summary

The author's interest in trust and planned change evolved over several years and through many disciplines. Initial research explorations focused on the theoretical and empirical literature, but later included problems of methodology. A multiple time-series, natural quasi-experimental research design was chosen as an evolutionary framework to study organizational development in research and development laboratories.

Nine focal groups, each with five to ten members, from three companies participated in the study. The three companies varied in their involvement with organizational development programs. Most individuals completed two batteries of questionnaires several months apart. These questionnaires measured demographic items, some personality traits (openness to experience, ego strength, and defensiveness), self-actualization, intergroup dependencies, the evaluation of past decisions, and the group climate--focusing on trust and openness of communication. Rating of the groups' effectiveness, towards the organization and toward their own subgoals, at several periods, were made by the participants, some peer groups, and several levels of their supervisors.

In addition to testing several hypotheses, methodological studies of many of the scales and of the procedures used in this project were made. Several of the scales are suggested as appropriate for various kinds of action research or organizational development programs. In addition, the procedures developed for this study are seen as useful for many kinds of longitudinal field research projects.

CHAPTER FOUR: Results

4.01 Chapter summary

This chapter reports and discusses some of the results of this research project. In section 4.02 some of the author's field observations and reactions are presented. This qualitative data serves as a complement to the more quantitative, questionnaire data. This project was designed with a considerable concern for methodology. Section 4.03 reviews some of the methodological findings from the study.

The quantitative, questionnaire data is presented in the final three sections of the chapter. Section 4.04 reports the tests of the three main hypotheses. Two hypotheses were supported:

> H 1. The more an individual trusts his work group and the more he generally trusts others with whom he interacts during his work, the greater will be his self-actualization.
>
> H 3. A "proper" organizational development program will increase individuals' feelings of trust toward their own work group and toward others while keeping the individuals aware of the demands of their tasks.

The other main hypotheses received mixed support; in addition it led to exploratory findings:

> H 2. The more the members of a group trust the group, and the more they generally trust others with whom they interact during their work, the more effective the group will be in its goal accomplishment.

Trust of one's work group did significantly correlate positively with the group's effectiveness toward achieving its goals as rated by the individuals in the group. However, correlations between trust and effectiveness as rated by superiors evidenced a negative pattern. Further investigation of the relationships led to a plausible conclusion: that there was a value conflict in the organizations between "obedient" and "self-reliant" behavior.

Several secondary hypotheses are tested in section 4.05; none showed strong support. In an exploratory analysis of the major variables of the study--section 4.06, several variables proved salient: time to complete the questionnaires, ego strength, openness to experience, age, education, and hierarchical position.

4.02 Field observations and reactions

There are many distinguishable research methodologies for the study of organizational behavior, including speculative theorizing, mathematical modeling, simulation, laboratory experimentation, survey research, case study, field study, field experimentation, and proposition formation and testing (Rubenstein & Haberstroh, 1966). This project has relied heavily on questionnaire data to test explicit hypotheses. However, in the very process of establishing the field sites, obtaining the quantitative data, and giving feedback reports to some of the groups, much qualitative data were also obtained. And, in addition to his observation of the field situation (cf. Adams & Preiss, 1960), the author had reactions to it (cf. Bennis, 1966: 144; Argyris, 1968 c).

These three different sources of data--quantitative questionnaires, qualitative observation, and personal reactions--are each potentially valid; each has its limitations, but each also complements the others (Webb, Campbell, Schwartz, & Sechrest, 1966). Most of the sections of this chapter will focus on the quantitative, questionnaire data. This section, however, will discuss these qualitative data.

Entry, project support and study participation. Companies G, P, and V share an important common element. In Companies P and V the OD agents and in Company G a top manager all were interested in the study and found participation to be feasible. Of the fourteen organizations in which participation was solicited and the thirteen which expressed strong interest in the study, only three finally felt--for whatever reasons--that participation would be feasible (see section 3.03).

At Company G, top management personnel changes removed the author's original contact, G00-20[1], from the organization under study. This likely had a strong effect on the subsequent lack of participation of Company G in the second questionnaire administration. This change in management occurred shortly after the first G group completed the questionnaire and before the other two groups were requested to participate in the study (see Figure 9, "Final Research Design and Organizational Events").

While G00-20 was with this part of Company G, he had the personnel manager, G00-25, act as primary liaison for the study. G00-25 was to "report as appropriate" to G00-20. However, after a group agreed to participate in the

[1]For added confidentiality, these code numbers differ from those used to code the data.

study, many further arrangements were made directly with the head of the group. (This latter procedure was also followed at Company P.) Although G00-20 "stepped back" from direct involvement in the study by having the personnel manager act as liaison, the "presence" of G00-20 was felt in the study. The personnel manager, the head of G01 (G01-H) and the members of G01 all knew that G00-20 was permitting the study to occur. The author believes that for many of the members of Company G, such "permission" also carried a feeling of "support."

The initial agreement the author made with G00-20, G00-25, and G01-H was that group G01 would be asked, by the author, to participate in the study. If they agreed and no snags developed, then another two groups would be asked to participate. After G01 had completed the scales, the author told G00-25 that he would like to begin working with the other two groups, yet to be chosen. G00-25 replied that since G00-20 was gone, it was "a new ballgame." Since a start had been made with G01, that could continue, but "extending" the study would require the approval of G00-21, the man who took the position of G00-20. G00-21 gave his approval, participation was solicited of G02 and G03, and they agreed.

The author never met G00-21. All the author's contacts were with G00-20, G00-25, and the heads and members of the groups. An incident involving the author and G00-21 illustrates the change in some of the conditions of the study. In preparation for meeting with groups G02 and G03 for the first time, the author was discussing with G01-H the organizational changes occasioned by the shifts in top management. The author requested an organizational chart. G01-H went into an adjoining room and asked the secretary of G00-21 for a chart. The secretary referred him to G00-21. G01-H then went through the open doorway of G00-21's office and explained the author's request. G00-21 replied that since the organization was still in a state of flux, a chart should not be given to the author, but G01-H could draw relevant sections of the chart.

During this interaction G01-H was in the doorway, G00-21 was in his office, and the author was a few feet behind G01-H. The author had not met G00-21, G01-H must have known this, G00-21 definitely knew it. G00-21 made no effort to meet the author, even briefly. The author had the feeling that G01-H was intentionally (though perhaps unconsciously) blocking the doorway. (If G01-H were not in the doorway, the author would have followed him into the office.) G00-21 was also "permitting" the study to occur. However,

feelings of implicit support for the study were definitely absent.

In contrast, the author felt he had a friendly and warm relationship with G00-20. G00-20 was interested in the study, and curious about sensitivity training, organizational development, and its possible applicability to Company G.

The author felt that the personnel manager was never involved in the study; in fact, it is likely he felt it somewhat of a threat and intrusion into his "territory." While he seemed willing to go along with the study if his supervisor "permitted" it, he evidenced no interest or initiative.

The members of the three groups did seem interested in the study. Their response to the Q15 questionnaire in May was good. Arrangements were made with the head of G01 for the second questionnaire administration; July was seen as a good time. However, only one member of G01 returned his questionnaire.

Another study of the Program of Research on the Management of Research and Development (POMRAD) was being conducted in Company G during these last few months, although not with G01, G02, or G03. This study was encountering resistance. Considering the overall lack of enthusiastic support at Company G for the author's study, and the desire to maintain good relations between POMRAD and Company G, it was decided not to push the field site.

Followups were made in all companies for each group to obtain the few late responses. However, in all cases other than this second administration at G01, the initial response rate was the majority of the group. The author believes that the members of the Company G groups were roughly as interested in the study as the members in some of the groups in the other field sites. However, after G00-20 left, there was no additional support within the company for the study.

In contrast with the situation at Company G, Companies P and V did have internal sources of support for the study. In both P and V the liaison man--the OD agent--was actively interested in the study. In addition, relations between the OD agents and the author were friendly and colleguial. At Company V many of the participants saw the study as being associated with their managers or top management. (The "responsible" column of the Decision Evaluation form for study participation, Q09, gave an indication of this. At Companies G and P, the author's initial contact was with managers several levels higher than his final liaison men. However, at Company V, the author's initial contact was only with the head of the organizational development depart-

ment, the OD agent's boss.)

That the OD agent felt it necessary to consult the group heads, their bosses, and their bosses' bosses, to establish the study provides some basis for the participants' perceptions. While these managers gave their "permission," it may have been felt as "support." A general feedback session with these managers (see below), led the author to believe that, in actuality, their overall "support" was not very active.

Groups V01 and V02 had good participation in all three questionnaire administrations--first, Q15, and second. V02 had partial initial participation, but the head of V02 did not participate. V02 returned no Q15 or second administration questionnaires. Finally, one member each in V02 and V03 participated in the first questionnaire administration, but did not identify themselves. It should be noted that in all companies all groups were explicitly informed that a summary of the data would be made available to their group after the second administration. Thus, there was the possibility, if they wanted it, of the participants getting <u>something</u> back for their effort. In spite of this inducement--an inducement the author feels to be not insubstantial for many participants--it would appear that even if a potential study participant were interested in the project, the attitudes of his superiors would have a considerable effect on his involvement.

The involvement of Company P was the most extensive of the three sites: good participation in all questionnaire administrations--<u>three</u> plus Q15 for P01 and P02, and a period of almost two years. Yet the "support" for the study came from the OD agent and from the groups themselves. The superiors of the heads of the groups did not need to grant permission for the study; in some cases their Q15 participation was their first involvement in any phase of the study. This may be taken as a direct reflection of the OD agent's perception of the latitude he had in his work.

<u>Control and climate</u>. The formal control structures and informal "climate" of the three companies closely paralleled the way that study participation evolved. Company G was highly centralized under the personal influence of G00-20. While a decentralization program was being instituted in the corporation, the top management changes occurred at G. During his time at Company G, the author heard and felt a kind of friendly atmosphere. It was not uncommon for members at G to bowl together, and carry some of that spirit back to work. Company G was physically quite different from the other sites: a small building (with about three hundred employees) surrounded by a good deal of grass and trees.

Company P was bigger, its building surrounded by concrete and other

buildings of other parts of the corporation. Research projects and corporate products evidence some decentralization. Security guards tightened procedures during the time of the study, but if a P employee told the receptionist it was all right, his visitor could walk unaccompanied to the employee's office.

Company V was tightly controlled. Tightly. It was the one company of all those the author had interviewed which did not permit tape recorders past the lobby. Employees were even expected to accompany guests to the bathroom. A manager reported that all budgets and requisitions were reviewed at the vice-presidential level. He reported seeing a vice president's signature authorizing a three dollar expenditure.

During the initial presentations to the groups at Companies G and P and during the feedback discussions with the groups at P and V, the author was able to obtain additional, qualitative, data on the groups. The author approached P01 just before they were scheduled for their first off-site team-building lab (see Figure 9). The group was eagerly looking toward the lab, and felt it "opportunistic" that the author contacted them with a project to measure some of the impact of an OD program just before they were starting their own.

P02 had a formal structural change in March, 1969. During the author's presentation to P02 in July, it became clear that the members did not understand what the structure of their group was supposed to be, what was so experimental in the setting up of their group. The OD agent took the opportunity to talk about OD and participative management; he mentioned that he was available as a resource. By the end of the meeting, the members did see what was new: that instead of hierarchical authority coming from above, this group was to mutually work out its tasks, with a triumvirate leadership function but no boss. The tone of the group changed during this meeting. Initially the group members were attending a meeting that their boss called, rather passively listening to the author's proposal. By the end of the meeting, the group was excitedly picking up on the suggestion of the OD agent that they might want to meet and get themselves organized.

The OD agent was initially shocked at the meeting by the members not knowing how their group was supposed to operate. He had previously felt that there were some problems with the group's leadership; this confirmed the feeling. However, his spontaneous use of organizational development techniques at the meeting (theory input and some consensus testing--see section 2.10) got the group off dead center. Thus, in many respects, P02 was just beginning to

form as a group when their participation in this study began.

Between the second and third questionnaire administration, a managerial appointment was made. The group considered the move unilateral and verbalized their exception to the way the decision was made. As one member of the group reported it on his Intervening Events form (Q10), "In my opinion this appointment signaled the end of a truly participating management group although upper management gave 'lip-service' to the contrary."

There had been some planning of an OD program for P03 for some time before the author made his initial presentation to the group. P03 was receptive, but not especially excited. Between the first and second questionnaire administrations to the group, no one reported any changes on Q10. In addition, the OD agent reported that the OD program had not been picked up.

P01 was fairly heavily involved in OD workshops: four occurred in slightly over a year's period. P02's original participative structure was an OD design. For both groups, the OD agent attended many of the regular meetings of the groups. In summary, the OD program at Company P with respect to the three groups in the study may be termed fairly active. In addition to the OD agent working with the three groups of the study, the OD department at Company P had several other OD agents. While the extent of participation in OD programs varied throughout segments of the company, a several-man staff was fully occupied. In contrast, Company V had one man doing some sensitivity training; another two people were spending part of their time on OD related efforts. OD was not known at Company G.

These events and aspects of group climate at Company P indicate the "conditional" nature of an OD program. In the "helping relationship" (cf. Nylen, Mitchell, & Stout, 1967: 112-117) of the OD consultant, he cannot, and would not want, to force participation in an OD program. Self-renewal is largely up to the members. An OD agent may make his availability known, he may facilitate OD, but he cannot ensure the start, continuance, or successful completion of an OD program phase. (The successful completion of an OD program phase might be indicated by the group having developed its resources and skills sufficiently so that it can and does accomplish for itself that for which it previously had relied on the OD agent.)

At Company V, organizational development received a back-handed assist from the company president. Some months before the first data administration at V, the president read a mass media article questioning the appropriateness

of personally focused sensitivity training for companies. It suggested that many companies were turning toward more task-related approaches, such as team-building and related organizational development techniques. Reportedly on the basis of this article, the president of V banned all sensitivity training. Company V did have several more "traditional" supervisory and related training programs. Some of these included experiential learnings. Primarily because of the president's directive, the OD group at V was beginning to become more involved with more OD programs.

But the entire concept of OD was fairly new and somewhat alien to much of Company V. For example, the managers (the groups' bosses' superiors and their bosses) evidenced a strong inertia during the general feedback session to them. (No group heads or members were present at this session, only the managers, the author, and the OD consultants.) Some of the data evidenced a pattern of poor relations with some target groups, including groups highly necessary for the focal groups to accomplish their work. Also indicated was the focal groups' low self-actualization (generally termed work satisfaction during the feedback sessions). The managers' response was "yes, but." Yes, the data agree with some of my own perceptions, ... but that's the way an industry like ours is, ... but that's the way any large organization must be, ... but that's the way people are. The feedback sessions to the focal groups evidenced some similarities to the managers' session. In general, the members of the groups felt that there was little they could do to influence their work environment.

These indications of climate and control for the focal groups may be summarized. Company G appeared to be a friendly, centralized but personal organization. Company P operated with a fairly decentralized structure. P01 was a fairly cohesive group, P02 was building itself but suffered some setbacks. Both were involved with some substantial organizational development programs. Company V had a tight, centralized, fairly impersonal atmosphere. The focal groups seemed to have acceptable internal relations, but to have difficulties with some groups which were critical for the task accomplishment of the focal groups.

Additional background events. In all three companies, and for most of the groups there were some minor personnel changes. However, except for those events previously discussed in this section, these changes probably had little influence on the variables measured.

Company P focal groups had some initial "seeding" with sensitivity training experience before this project (and before most of the OD program) began. The heads of the three focal groups, several members of P01, and the superior of the boss of the head of P01 had attended some kind of external sensitivity training program. About half the members of V01 had some inhouse training which included some experiential elements, a couple of members of V02 and V03 also had such training. Most of this training was before the study began at V. The author knows of no one in Company G who had any sensitivity training experience.

4.03 Methodological results

A central concern of this study was with methodological issues. These included procedures for a longitudinal study, testing scales potentially useful in evaluating and guiding organizational development programs, and "norms" or standards for comparison for the scales. Most of the specific methodological results are presented elsewhere in this dissertation, especially in sections 3.08 and 3.10. These findings will be briefly reviewed; some additional comments will be made.

The procedures developed in this study are seen as appropriate for organizational development studies and for longitudinal research. The author believes that to a considerable extent, the greater the involvement of the participants in the study (including, if appropriate, measuring variables of concern to them), the more likely is the study to be "successful"--to be supporte supported and to obtain valid data.

The scales were tested in an industrial and technical setting. Many of these scales focused on specific groups with which the focal group interacted (cf. Whisler, Meyer, Baum, & Sorensen, 1967: 25f). This procedure was found to provide significant data; in addition it was of use to the participants. Statistics on completion times for several of the scales (see Table 6) were computed; scales requesting ratings of more than six or so target groups tended to create resistance in the participants.

Reliabilities for the scales were determined (see Table 5). Item analyses were performed on the Beliefs (Q07) and Disclosure (Q08) scales (see Tables 8 and 11). Finally, test-retest statistics were also investigated (see Tables 13 and 14).

Two "standard group" procedures were found to increase interpretability of the data. "Standard groups" (your best friend, people-in-general) were rated along with company target groups. These standard groups provided a natural "zero point" against which other scores could be compared. Difference scores were computed (for example, the difference between trust of people-in-general and of the focal group). These difference scores provided additional insight into the underlying relationships of the variables measured (see section 4.05). Also, if a company target group were trusted less than "people-in-general," this would indicate rather clearly a poor relationship. Such a datum is more readily interpretable than an isolated score of 14 on a trust scale.

To aid in interpretation of studies using these scales, various "norms" were computed (see Table 29). These norms include results from other studies and analysis of data from other studies (cf. results of this study, Table 5). site and participant selection procedures do not permit generalization to a well-defined statistical population, the results of this study may be taken as an ad hoc sample of high technology organizations. To the extent that there is consistency among the data for the nine differing focal groups, generalization to other similar high technology groups becomes less hazardous (see section 4.07).

4.04 Main Hypotheses

The testing of three main hypotheses was a central goal of this study. The three hypotheses relate trust, effectiveness, and organizational development. Table 15 presents, for various samples of study participants, correlations between the variables for each hypothesis. Both parametric and nonparametric statistics--Pearson's r and Spearman's rho-- are indicated.

The first hypothesis was:

> H1. The more an individual trusts his work group and the more he generally trusts others with whom he interacts during his work, the greater will be his self-actualization.

Hypothesis H 1 is supported. Using first administration data, a significant relationship ($p<0.05$) is found between trust of focal group and self-actualization (rho= 0.300, n = 72), and between the average trust of target groups and self-actualization (rho = 0.287, n = 72). When an overall trust index is created by adding together focal and average target group trust, the correlation between trust (as measured by the overall index) and self-actualization is even stronger (rho = 0.353, n = 72, $p < 0.01$).

To investigate the generality of support, separate tests were made of these relationships for each company's sample. The relationship between focal group trust and self-actualization is statistically significant for first Company P (rho = 0.492, n = 23); it approaches significance for 770/ data at Company P (rho = 0.337, n = 19). The relationship is not supported by Company V first administration data (rho = 0.023, n = 24) or by Company V 770/ data (rho = -0.143, n = 14).

The relationship between average target group trust and self-actualization approaches significance for Company V data--both first administration (rho = 0.398, n = 24) and 770/ (rho = 0.225)--and for initial Company G data (rho = 0.313, n = 25). The relationships for initial Company P data (rho = 0.141, n = 23) and for 770/ Company P data (rho = 0.117, n = 19) are less strong.

The small sample sizes contribute to the nonsignificance of some of the separate company correlations. However, the results also indicate that the three companies are not homogeneous. While trust of the focal group is related to self-actualization at Companies P and G, it appears that trust of target groups is the more relevant variable at Company V. It is possible that the selection of target groups at Company V included more "critical" relationships than at other companies. From the data available (see Table 31, "Summary

Table 15. Summary of Some Correlations for Various Samples for the Hypotheses

Hy	Variables	Pearson r 1/GPV	n	Spearman rho 1/GPV	1G	1P	1V	770/P	770/V
	n (except as below)			(72)	(25)	(23)	(24)	(19)	(14)
	n for V01			(62)	(21)	(20)	(21)	(19)	(11)
	n for V36 thru V47			(47)					
H 1a	V02 & V04	0.174	(70)	0.300**	0.447*	0.492**	0.023	0.357	-.143
H 1b	V02 & V05	0.256*	(71)	0.287**	0.313	0.141	0.398*	0.117	0.225
H 1	V02 & (V04 + V05)	0.227*	(71)	0.353**	0.542**	0.321	0.230	0.213	0.023
H 1	V02 & V13	0.066	(70)	0.160	0.370*	0.335	-.170	-.444*	-.157
H 1	V02 & V14	0.043	(71)	0.107	0.192	0.196	-.068	-.465*	-.178
H 1	V02 & (V13 + V14)	0.072	(65)	0.132	0.204	0.271	-.140	-.432*	0.000
H 2b	V04 "before" & V43	0.279*	(44)	0.387**					
H 2b	V04 "before" & V45	-.227	(46)	-.185					
H 2c	V05 "before" & V38	-.242*	(47)	-.297*					
HS 1a	V01 & V29	-.279*	(62)	-.158	-.046	-.448*	0.085	-.124	0.152
HS 1b	V01 & V03	-.169	(62)	-.073	0.095	-.213	-.289	0.234	-.562*
HS 4	V27 & V29	-.161	(71)	-.111	0.052	-.148	-.304	0.157	-.137
HS 5	V02 & V27	-.014	(71)	-.094	0.106	0.076	-.304	-.293	-.183
HS 6	V02 "before" & V43	-.102	(44)	0.031					
HS 6	V02 "before" & V45	-.109	(47)	-.194					
HS 7	V02 "before" & V38	-.220	(47)	-.235					
HS 8	V16 & V28	0.125	(69)	0.118	0.066	0.268	0.029		
HS 8	V18 & V28	0.018	(70)		-.013	-.363*	0.121		

Significance tests are one-tailed: *$p < 0.05$, **$p < 0.01$

Group Scores"), there is some indication that V's target groups are more important for the functioning of the focal groups (Work Relationships-time) and that the V focal groups are more dependent upon their target groups (Work Relationships-kind).

The second hypothesis of this study had three parts:

H 2a. The more the members of a group trust the group, and the more they generally trust others with whom they interact during their work, the more effective the group will be in its goal accomplishment.

H 2b. The higher the group trust of itself, the greater the group's effectiveness toward achieving its own goals.

H 2c. The higher the group trust of others with whom they interact, the greater the groups' effectiveness toward the organization's goals.

Although there are some questions concerning the validity of the Q15 effectiveness ratings (see below), the data relating to hypothesis H 2 may be investigated.[1] Tables 16 through 21 present correlations involving the effectiveness ratings. Two sets of data are involved (cf. Farris, 1969). The first set is based on questionnaire data previous to the effectiveness ratings. For most groups, this involved first administration questionnaire data and effectiveness ratings (on Q15) as of "now--May 1970." Since P01 and P02 had more recent trust before effectiveness data, their second administration data was used. And because of the long time involved for P01, effectiveness ratings closer to their before data (ratings of "eight months back--September 1969") were used for that group. Reference to Figure 9 may clarify these relationships.

[1] Mean ratings of focal group effectiveness by bosses (B), the focal group (F), and peer groups (P) and mean ratings of self effectiveness (S) of individuals in the focal groups were assigned to each individual in the focal group. Thus, each individual would have twelve effectiveness scores per time period--six for contribution toward organizational goals and six toward the group goals. Two of these six scores would be the individual's own rating of his self effectiveness (I) and of the effectiveness of the focal group (G). The other four scores would be identical for all members of the focal group. For example, the mean of all the bosses' ratings of the focal group would be assigned to each member of the focal group as his effectiveness rating by his superiors. This procedure of assigning identical scores for four of the six ratings to all members of the focal group may be expected to create some statistical artifacts, especially inflated correlations. However, since no individual effectiveness data was made available by the companies, such an assignment procedure was considered as the best means of utilizing the information that was available--individual scores on the "questionnaire" variables and group scores on effectiveness ratings.

Table 16 . Spearman Correlations (with Student's t) Between Effectiveness Ratings and Selected "Before" Variables

Var	rho V37 Org-Group	t V37 Org-Group	rho V38 Org-Boss	t V38 Org-Boss	rho V39 Org-Focal	t V39 Org-Focal	rho V40 Org-Self	t V40 Org-Self	rho V41 Org-Peer	t V41 Org-Peer
V01	-.177	-1.206	-.047	-0.319	-.237	-1.638	0.227	1.566	0.371	2.680*
V02	0.140	0.951	-.235	-1.621	0.174	1.184	0.000	0.003	-.173	-1.176
V03	0.152	1.033	-.062	-0.418	-.096	-0.648	-.120	-0.811	-.026	-0.177
V04	0.138	0.934	-.307	-2.161*	-.118	-0.801	-.100	-0.672	-.086	-0.581
V05	0.079	0.534	-.297	-2.090*	-.195	-1.332	-.131	-0.892	0.191	1.303
V13	-.052	-0.348	-.250	-1.736	0.048	0.326	-.066	-0.038	-.056	-0.379
V14	-.108	-0.728	-.152	-1.032	0.076	0.515	0.014	0.095	0.034	0.227
V28	-.084	-0.567	-.316	-2.232*	0.092	0.623	-.225	-1.550	0.022	0.145

Var	V43 Grp-Group		V44 Grp-Boss		V45 Grp-Focal		V46 Grp-Self		V47 Grp-Peer	
V01	-.141	-0.958	0.021	0.139	-.184	-1.253	0.113	0.766	0.100	0.675
V02	0.031	0.205	-.231	-1.590	-.194	-1.329	-.022	-0.150	-.072	-0.485
V03	0.144	0.975	-.182	-1.245	-.379	-2.747**	-.350	-2.506*	-.313	-2.211*
V04	0.387	2.815**	0.014	0.092	-.185	-1.260	-.099	-0.665	-.055	-0.373
V05	0.233	1.608	-.116	-0.782	-.246	-1.705	-.173	-1.180	0.111	0.752
V13	0.184	1.259	0.128	0.868	0.219	1.503	0.251	1.743	0.321	2.271**
V14	-.067	-0.447	0.052	0.347	0.193	1.318	0.220	1.517	0.323	2.289**
V28	-.011	-0.072	-.233	-1.608	-.104	-0.704	-.138	-0.934	0.204	1.398

Two-tailed significance tests: *p<0.05, **p<0.01, n= 47.
V36 and V42 are omitted due to the large proportion of "no response" answers, 19/47.

Table 17 . Spearman Correlations (with Student's t) Between Effectiveness Ratings and Selected "After" Variables

Var	V37 Org-Group rho	V37 Org-Group t	V38 Org-Boss rho	V38 Org-Boss t	V39 Org-Focal rho	V39 Org-Focal t	V40 Org-Self rho	V40 Org-Self t	V41 Org-Peer rho	V41 Org-Peer t
V01	-.204	-1.021	0.060	0.292	-.038	-0.189	-.165	-0.818	0.076	0.374
V02	0.035	0.172	-.016	-0.081	-.303	-1.558	-.528	-3.045**	0.284	1.449
V03	-.120	-0.590	0.359	1.883+	-.214	-1.071	-.354	-1.856+	-.255	-1.293
V04	0.092	0.452	-.310	-1.597	0.204	1.019	-.575	-3.445**	0.059	0.289
V05	0.275	1.401	-.408	-2.189*	0.077	0.376	-.376	-1.990+	0.348	1.817+
V13	0.103	0.508	-.609	-3.758**	0.270	1.374	-.253	-1.284	0.243	1.225
V14	0.289	1.476	-.645	-4.131**	0.229	1.153	-.034	-0.168	0.452	2.481*
V28	0.047	0.228	-.335	-1.739	0.222	1.114	-.156	-0.775	0.241	1.219
	V43 Grp-Group		V44 Grp-Boss		V45 Grp-Focal		V46 Grp-Self		V47 Grp-Peer	
V01	-.429	-2.324*	-.206	-1.032	-.253	-1.279	-.234	-1.177	0.035	0.171
V02	-.342	-1.785	-.503	-2.854**	-.441	-2.408*	-.627	-3.942**	0.284	1.450
V03	-.275	-1.402	-.129	-0.638	-.489	-2.748*	-.383	-2.033+	-.268	-1.365
V04	0.054	0.264	-.472	-2.625*	-.291	-1.491	-.458	-2.523*	0.304	1.562
V05	0.289	1.480	-.445	-2.437*	-.082	-0.402	-.345	-1.803+	0.492	2.770*
V13	0.277	1.412	-.261	-1.326	0.234	1.178	-.080	-0.393	0.521	2.990**
V14	0.452	2.484*	-.224	-1.126	0.374	1.974+	0.049	0.239	0.616	3.831**
V28	0.216	1.076	-.287	-1.467	-.006	-.028	-.131	-0.646	0.336	1.745

Two-tailed significance tests: +p< 0.10, *p< 0.05, **p< 0.01, n= 26.
V36 and V42 are omitted due to the large proportion of "no response" answers, 7 and 8 of 26.

The overall design in selecting this "previous" sample of data was to obtain the most recent effectiveness ratings which had slightly earlier questionnaire data.

The second set of data is based on questionnaire data after the effectiveness ratings--trust after effectiveness data. "Now-May 1970" effectiveness ratings were compared with 770/ questionnaire data. These data, therefore, do not reflect any data from Company G or from Group V02, neither of which contributed to 770/ data.

Table 18 presents Pearson correlations between the effectiveness ratings and the "before" questionnaire variables, Table 19 presents these Pearson correlations for the "after" variables, and Table 20 presents the Pearson intercorrelations among the effectiveness ratings--for both "before" and "after" data samples. Table 21 is a chart showing a summary of significant Pearson intercorrelations among the effectiveness ratings and the other variables, both "before" and "after." Correlations significant at 0.10, 0.05, and 0.01 (two-tailed) are indicated in the chart.

Tables 16 and 17 present Spearman correlations between the effectiveness ratings and selected other variables. These other variables are standardized time for questionnaire completion (V01), self-actualization (V02), trust of people-in-general (V03), focal group trust (V04), average target group trust (V05), the difference between focal and "people" trust (V13), the difference between average target and "people" trust (V14), and ego strength (V28). (Variable numbers are keyed to Table 24 discussed in section 4.06.)

These tables (16 through 21) present a mixed picture of significant positive and negative correlations. An initial simplification may be made--focusing on bosses' rating of organizational effectiveness and the focal group's rating of group effectiveness. Under these conditions, hypothesis H 2b is supported considering individual ratings of focal group effectiveness by the "trust before effectiveness" data ($rho = 0.387$, $n = 47$, $p < 0.01$), but not by any of the "trust after effectiveness" data, nor by averaged focal group ratings. Ratings of group effectiveness by the peer group generally show positive significant correlations with "focal-people" and with "target-people" trust differences (V13 and V14) for both "before" and "after" data.

Bosses' ratings of organizational and of group effectiveness generally show significant negative correlations with the questionnaire variables. This would tend to withhold support from hypothesis H 2c.

An initial interpretation of these effectiveness correlations would be that H 2b received some limited support, but that H 2c relationships were opposite to those hypothesized. However, the large number of "conflicting" correlations

(significant correlations of opposite signs for various groups of raters) prompts consideration of plausible rival hypotheses (Webb, Campbell, Schwartz, & Sechrest, 1966

One rival hypothesis would be that the "questionnaire" variables are unreliable. However, both methodological and experiential tests of the Beliefs scale and its trust indices showed it to be a reliable instrument (see section 3.10). The self-actualization scale also evidenced sound methodological properties, and questionnaire completion time is a rather direct measure. The ego strength scale also manifests good reliability. Further, ego strength may be seen as a generalized coping and adaptive ability (cf. the discussion of ego strength in section 4.06).

It is unlikely that such an overall coping ability would be negatively correlated with task effectiveness, yet that is what the tables indicate. It is possible that individuals high in ego strength become "too independent," working only for their own goals and not considering the goals of the organization. Although possible, this is unlikely. The individual higher in ego strength should be able, in fact, to better integrate his own personal goals with those of his work group and the organization. It seems plausible, therefore, that some effectiveness ratings may be negatively correlated with the "true" effectiveness of the focal groups.

Two possible interpretations of the effectiveness data emerge. The first is based on a straightforward reading of the tables. This would indicate that focal group trust, target group trust, self-actualization, and ego strength tend to be negatively correlated with effectiveness. (As Table 20 indicates, group and organizational effectiveness ratings by all raters significantly and positively correlate, $0.371 \leq r \leq 0.842$.)

A second interpretation grows from a consideration of ego strength. As discussed in section 4.06, ego strength scores in this study form a pattern with self-actualization, "ease of decision-making," and organizational status--factors representative of a generalized coping ability. Based on the soundness of the ego strength measure, and reinforced by the other variables, (trust and self-actualization), the second interpretation would be that some raters tend to rate as less effective groups which evidence greater independence and confrontation (Table 21 shows, for example, significant negative correlations between disclosure and effectiveness). An overall consideration of the data on the effectiveness ratings (Tables 16 through 21) leads the author to support this second interpretation.

Thus, the data available is not considered to be a valid test of H 2. However, an important issue is raised. If this second interpretation is

Table 18A. Pearson Correlations Between Effectiveness Ratings and "Before" Variables, with Sample Sizes

V	Variable	"Organizational" Goals Rating By						"Group" Sub-goals Rating By					
		Indvl	Group	Boss	Focal	Self	Peer	Indvl	Group	Boss	Focal	Self	Peer
01	Standard time	0.335	-.127	-.098	-.142	-.006	0.390	-.240	-.154	-.325	-.196	-.179	0.100
		(20)	(37)	(38)	(38)	(38)	(33)	(19)	(35)	(38)	(38)	(38)	(33)
02	Self-Actualization	-.143	0.229	-.220	0.193	-.043	-.270	0.081	-.102	-.266	-.109	0.019	0.037
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
03	Trust People	-.195	0.191	-.043	-.165	-.175	-.023	-.423	0.181	-.175	-.384	-.338	-.346
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
04	Trust Focal	-.139	0.086	-.309	-.220	-.085	-.080	-.249	0.279	-.166	-.227	-.140	-.023
		(28)	(45)	(46)	(46)	(46)	(40)	(28)	(44)	(46)	(46)	(46)	(40)
05	Trust Tar Avg	-.166	-.054	-.242	-.182	-.171	-.088	-.253	0.020	-.182	-.290	-.253	-.123
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
06	Respect People	0.044	-.031	0.196	-.154	-.192	-.143	-.064	-.022	0.004	-.318	-.354	-.561
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
07	Respect Focal	-.168	0.261	-.338	-.051	-.171	-.261	-.199	0.274	-.201	-.158	-.119	0.014
		(28)	(45)	(46)	(46)	(46)	(40)	(28)	(44)	(46)	(46)	(46)	(40)
08	Respect Tar Avg	-.179	0.065	-.253	-.056	-.255	-.191	-.218	-.267	-.426	-.298	-.305	-.138
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
09	Trans Confidence People	-.054	0.243	0.256	0.090	0.137	-.206	-.137	0.295	-.078	-.182	-.006	-.379
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
10	Trans Confidence Friend	0.144	-.105	0.189	-.189	-.004	-.093	-.153	-.067	0.053	-.156	-.128	-.412
		(27)	(43)	(45)	(45)	(45)	(39)	(27)	(42)	(45)	(45)	(45)	(39)
11	Trans Confidence Focal	-.114	0.132	-.069	0.080	-.153	-.063	0.004	-.005	-.218	0.071	-.089	0.148
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
12	Trans Confidence Tar Avg	-.100	0.270	-.101	0.084	-.134	-.086	-.184	0.043	-.367	-.145	-.168	0.022
		(28)	(44)	(46)	(46)	(46)	(40)	(28)	(43)	(46)	(46)	(46)	(40)
13	Trust (Focal-People)	0.054	-.104	-.200	-.017	0.088	-.048	0.156	0.052	0.032	0.178	0.195	0.372
		(28)	(45)	(46)	(46)	(46)	(40)	(28)	(44)	(46)	(46)	(46)	(40)
14	Trust (Tar Avg-People)	0.067	-.208	-.178	-.025	-.006	-.064	0.215	-.137	-.017	0.063	0.058	0.190
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
15	Self Disclosure Friend	0.113	-.101	-.059	-.159	-.101	0.251	0.066	-.176	-.165	-.332	-.281	-.127
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
16	Self Disclosure Focal	-.131	0.135	-.298	0.068	-.008	-.150	-.119	0.024	-.303	-.328	-.081	-.032
		(27)	(44)	(45)	(45)	(45)	(39)	(27)	(43)	(45)	(45)	(45)	(39)
17	Self Disclosure Tar Avg	-.196	0.126	-.466	0.063	-.089	-.421	0.007	-.031	-.280	-.342	-.089	-.013
		(27)	(43)	(45)	(45)	(45)	(39)	(27)	(42)	(45)	(45)	(45)	(39)
18	Self Disclsr (Frnd-Focal)	0.204	-.200	0.174	-.218	0.027	0.382	0.153	-.179	0.029	-.114	-.141	-.040
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)

Table 18B. Pearson Correlations Between Effectiveness Ratings and "Before" Variables, with Sample Sizes

V	Variable	"Organizational" Goals Rating by						"Group" Sub-goals Rating By					
		Indvl	Group	Boss	Focal	Self	Peer	Indvl	Group	Boss	Focal	Self	Peer
19	Othr Disclosure Friend	0.179	-.078	-.014	-.160	-.043	0.324	0.088	-.118	-.090	-.293	-.233	-.094
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
20	Othr Disclosure Focal	-.007	0.099	-.265	-.036	0.024	0.107	0.124	0.061	-.132	-.272	-.071	0.050
		(27)	(44)	(45)	(45)	(45)	(39)	(27)	(43)	(45)	(45)	(45)	(39)
21	Othr Disclosure Tar Avg	-.179	0.160	-.428	0.102	-.140	-.413	0.028	0.025	-.264	-.318	-.125	-.016
		(27)	(43)	(45)	(45)	(45)	(39)	(27)	(42)	(45)	(45)	(45)	(39)
22	Othr Disclsr (Frnd-Focal)	0.180	-.169	0.206	-.154	0.044	0.293	-.028	-.177	-.018	-.109	-.114	-.070
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
23	Age	-.645	-.008	-.147	0.017	-.270	-.155	-.588	0.100	-.440	-.201	-.327	-.068
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(46)	(47)	(41)
24	Education	0.083	-.181	-.112	0.086	-.199	-.079	0.134	0.021	-.127	0.132	-.084	0.200
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
25	Tenure	-.341	-.166	-.193	-.114	-.094	-.043	-.334	0.088	-.303	-.409	-.291	-.171
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
26	Hierarchical Index	0.234	-.017	0.530	0.058	0.432	0.405	0.163	0.254	0.616	0.621	0.524	0.225
		(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
27	Experience Inquiry-56	0.020	0.095	0.218	0.061	0.235	0.112	0.190	-.153	0.210	0.215	0.265	0.060
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
28	Ego strength-Es	0.066	-.074	-.336	0.065	-.128	-.069	0.180	-.087	-.253	-.072	-.065	0.227
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
29	Defensiveness-K	0.230	0.051	-.229	-.245	-.108	-.135	-.054	-.121	-.185	-.450	-.245	-.255
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
30	KD1	-.207	0.270	0.144	0.092	-.085	-.304	-.289	0.097	-.232	-.179	-.158	-.296
		(27)	(44)	(46)	(46)	(46)	(40)	(27)	(43)	(46)	(46)	(46)	(40)
31	Q12 Time Focal	0.299	0.280	-.334	0.245	-.345	0.012	0.000	0.174	-.362	-.069	-.243	0.113
		(15)	(19)	(19)	(19)	(19)	(16)	(14)	(18)	(19)	(19)	(19)	(16)
32	Q12 Kind Focal	-.120	-.192	0.055	0.116	0.201	0.238	-.047	-.156	0.244	0.390	0.366	0.303
		(15)	(21)	(21)	(21)	(21)	(17)	(14)	(20)	(21)	(21)	(21)	(17)
33	Q12 Time Tar Avg	-.235	0.208	-.464	0.115	-.439	-.179	-.095	0.251	-.278	-.029	-.253	0.110
		(18)	(23)	(24)	(24)	(24)	(19)	(17)	(22)	(24)	(24)	(24)	(19)
34	Q12 Kind Tar Avg	-.078	-.163	-.220	0.037	-.113	0.033	-.173	-.117	0.020	0.185	0.061	0.192
		(18)	(24)	(25)	(25)	(25)	(20)	(17)	(23)	(25)	(25)	(25)	(20)
35	Q12 I's	-.032	-.026	-.316	-.150	-.186	-.111	0.105	0.371	0.010	0.066	-.054	0.037
		(16)	(19)	(20)	(20)	(20)	(18)	(15)	(18)	(20)	(20)	(20)	(18)
	Mean	66.07	65.56	52.04	65.28	65.68	53.59	65.00	67.73	62.11	67.49	64.83	55.90
	Standard deviation	16.85	16.03	8.01	7.64	10.05	3.71	17.32	18.41	13.98	7.88	9.98	3.53

Table 19A. Pearson Correlations Between Effectiveness Ratings and "After" Variables, with Sample Sizes

V	Variable	"Organizational" Goals Rating By						"Group" Sub-goals Rating By					
		Indvl	Group	Boss	Focal	Self	Peer	Indvl	Group	Boss	Focal	Self	Peer
01	Standard time	-.114	-.270	0.192	0.106	-.071	0.004	-.264	-.385	-.104	-.187	-.145	-.090
		(17)	(24)	(24)	(24)	(24)	(20)	(16)	(22)	(24)	(24)	(24)	(20)
02	Self-Actualization	-.148	0.045	-.054	-.391	-.462	-.202	-.362	-.325	-.428	-.478	-.563	-.247
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
03	Trust People	-.266	-.162	0.400	-.232	-.259	-.296	-.370	-.278	-.164	-.550	-.460	-.471
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
04	Trust Focal	-.443	-.005	-.260	-.048	-.577	-.459	-.368	0.048	-.361	-.259	-.433	0.179
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
05	Trust Tar Avg	-.152	0.266	-.388	-.024	-.419	-.043	-.258	0.254	-.384	-.095	-.286	0.288
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
06	Respect People	-.196	0.072	0.288	-.023	-.389	-.301	-.153	-.097	-.269	-.519	-.490	-.276
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
07	Respect Focal	-.222	0.131	-.361	0.031	-.525	-.100	0.066	0.464	-.461	-.183	-.384	0.279
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
08	Respect Tar Avg	-.119	0.192	-.158	-.074	-.417	0.044	-.410	0.150	-.484	-.319	-.437	0.061
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
09	Trans Confidence People	-.133	-.235	0.313	-.067	-.224	-.350	-.309	-.193	-.063	-.380	-.314	-.321
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
10	Trans Confidence Friend	0.071	-.383	0.018	-.033	-.115	-.266	-.010	-.149	-.016	-.084	-.095	-.072
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
11	Trans Confidence Focal	0.023	-.100	-.229	-.275	-.244	-.286	-.006	0.034	-.154	-.094	-.200	0.006
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
12	Trans Confidence Tar Avg	-.180	0.298	-.380	-.127	-.545	-.255	-.458	-.067	-.430	-.209	-.415	0.256
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
13	Trust (Focal-People)	-.131	0.133	-.528	0.160	-.208	-.002	0.010	0.266	-.129	0.272	0.067	0.548
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
14	Trust (Tar Avg-People)	0.123	0.316	-.595	0.175	-.073	0.210	0.149	0.417	-.128	0.389	0.183	0.550
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
15	Self Disclosure Friend	-.313	0.148	0.291	0.271	-.231	-.047	-.142	0.095	-.239	-.351	-.303	-.085
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
16	Self Disclosure Focal	-.380	0.002	0.013	-.043	-.620	-.541	-.346	0.134	-.291	-.444	-.538	-.084
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
17	Self Disclosure Tar Avg	-.510	0.303	-.145	-.085	-.571	-.491	-.391	0.138	-.283	-.314	-.450	0.020
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
18	Self Disclsr (Frnd-Focal)	-.015	0.135	0.256	0.280	0.248	0.388	0.110	-.004	-.004	0.008	0.121	-.018
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)

Table 19B. Pearson Correlations Between Effectiveness Ratings and "After" Variables, with Sample Sizes

V	Variable	"Organizational" Goals Rating By						"Group" Sub-goals Rating By					
		Indvl	Group	Boss	Focal	Self	Peer	Indvl	Group	Boss	Focal	Self	Peer
19	Othr Disclosure Friend	-.304	0.145	0.314	0.248	-.197	-.035	-.117	0.091	-.217	-.348	-.387	-.112
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
20	Othr Disclosure Focal	-.416	0.009	-.075	0.021	-.647	-.500	-.255	0.130	-.347	-.400	-.528	0.019
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
21	Othr Disclosure Tar Avg	-.431	0.308	-.152	0.007	-.532	-.418	-.312	0.171	-.335	-.312	-.454	0.082
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
22	Othr Disclsr (Frnd-Focal)	0.014	0.192	0.349	0.222	0.253	0.337	0.069	-.003	0.031	-.058	0.087	-.139
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
23	Age	-.642	-.021	-.429	-.039	-.758	-.221	-.557	-.031	-.651	-.348	-.607	0.307
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
24	Education	-.106	-.234	-.438	-.164	-.199	0.015	-.219	-.118	-.185	0.095	-.073	0.243
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
25	Tenure	-.469	0.062	-.187	0.049	-.798	-.191	-.412	-.089	-.727	-.552	-.743	0.123
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
26	Hierarchical Index	0.513	0.023	-.001	0.075	0.863	0.462	0.597	0.237	0.643	0.716	0.854	0.110
		(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
27	Experience Inquiry-56	0.046	-.205	0.185	0.098	0.497	0.319	0.251	-.145	0.343	0.292	0.430	-.050
		(18)	(24)	(24)	(24)	(24)	(18)	(17)	(23)	(24)	(24)	(24)	(18)
28	Ego strength-Es	0.014	-.104	-.346	0.055	-.298	0.057	-.141	0.076	-.323	-.018	-.184	0.282
		(18)	(24)	(24)	(24)	(24)	(18)	(17)	(23)	(24)	(24)	(24)	(18)
29	Defensiveness-K	0.187	0.000	0.502	-.458	0.036	-.196	0.067	0.087	0.050	-.473	-.286	-.654
		(18)	(24)	(24)	(24)	(24)	(18)	(17)	(23)	(24)	(24)	(24)	(18)
30	KD1	-.180	0.172	0.318	-.275	-.115	-.037	-.013	0.198	-.192	-.467	-.372	-.433
		(18)	(24)	(24)	(24)	(24)	(18)	(17)	(23)	(24)	(24)	(24)	(18)
31	Q12 Time Focal	0.209	0.225	-.114	0.222	-.470	-.021	0.067	0.073	-.524	-.297	-.423	0.172
		(14)	(18)	(18)	(18)	(18)	(15)	(13)	(16)	(18)	(18)	(18)	(15)
32	Q12 Kind Focal	0.107	-.077	-.248	0.189	0.319	0.159	-.062	0.038	0.303	0.515	0.492	0.283
		(14)	(20)	(20)	(20)	(20)	(16)	(13)	(18)	(20)	(20)	(20)	(16)
33	Q12 Time Tar Avg	-.414	0.128	-.324	0.053	-.411	-.173	-.242	0.193	-.318	-.091	-.254	0.369
		(17)	(22)	(22)	(22)	(22)	(17)	(16)	(20)	(22)	(22)	(22)	(17)
34	Q12 Kind Tar Avg	0.005	-.087	-.172	-.031	0.023	0.130	-.098	-.010	-.050	0.103	0.054	0.126
		(17)	(23)	(23)	(23)	(23)	(18)	(16)	(21)	(23)	(23)	(23)	(18)
35	Q12 I's	-.235	-.018	-.119	-.182	-.182	-.234	-.046	0.247	-.104	-.088	-.154	-.003
		(15)	(19)	(19)	(19)	(19)	(17)	(14)	(17)	(19)	(19)	(19)	(17)
	Mean	63.68	65.77	48.73	65.12	63.42	54.55	64.44	65.83	60.35	63.62	62.69	58.85
	Standard deviation	14.99	14.47	5.50	5.11	6.92	1.67	12.94	15.58	13.79	10.20	10.22	2.06

Table 20. Pearson Intercorrelations Among Effectiveness Ratings, With Sample Sizes

"Before" Variables

Var	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47
V36	1.000	0.002	0.266	0.030	0.521	0.074	0.782	-.045	0.196	0.110	0.405	-.035
	(28)	(28)	(28)	(28)	(28)	(25)	(27)	(27)	(28)	(28)	(28)	(25)
V37	0.002	1.000	0.108	0.480	0.092	-.239	-.042	0.514	-.097	0.264	0.254	0.168
	(28)	(45)	(45)	(45)	(45)	(39)	(27)	(43)	(45)	(45)	(45)	(39)
V38	0.266	0.108	1.000	0.216	0.429	0.031	0.126	0.151	0.414	0.383	0.329	-.387
	(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
V39	0.030	0.480	0.216	1.000	0.181	-.470	0.235	0.223	-.116	0.531	0.523	0.319
	(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
V40	0.521	0.092	0.429	0.181	1.000	-.016	0.409	0.079	0.277	0.153	0.836	-.081
	(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
V41	0.074	-.239	0.031	-.470	-.016	1.000	-.020	0.043	0.234	0.144	-.139	0.423
	(25)	(39)	(41)	(41)	(41)	(41)	(25)	(38)	(41)	(41)	(41)	(41)
V42	0.782	-.042	0.126	0.235	0.409	-.020	1.000	0.118	0.284	0.368	0.535	0.223
	(27)	(27)	(28)	(28)	(28)	(25)	(28)	(28)	(28)	(28)	(28)	(25)
V43	-.045	0.514	0.151	0.223	0.079	0.043	0.118	1.000	0.390	0.408	0.246	0.241
	(27)	(43)	(44)	(44)	(44)	(38)	(28)	(44)	(44)	(44)	(44)	(38)
V44	0.196	-.097	0.414	-.116	0.277	0.234	0.284	0.390	1.000	0.509	0.404	0.005
	(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
V45	0.110	0.264	0.383	0.531	0.153	0.144	0.368	0.408	0.509	1.000	0.577	0.577
	(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
V46	0.405	0.254	0.329	0.523	0.836	-.139	0.535	0.246	0.404	0.577	1.000	0.289
	(28)	(45)	(47)	(47)	(47)	(41)	(28)	(44)	(47)	(47)	(47)	(41)
V47	-.035	0.168	-.387	0.319	-.081	0.423	0.223	0.241	0.005	0.577	0.289	1.000
	(25)	(39)	(41)	(41)	(41)	(41)	(25)	(38)	(41)	(41)	(41)	(41)

"After" Variables

V36	1.000	-.048	0.106	-.063	0.464	0.256	0.734	0.122	0.306	0.254	0.373	-.089
	(19)	(19)	(19)	(19)	(19)	(16)	(18)	(18)	(19)	(19)	(19)	(16)
V37	-.048	1.000	-.150	0.315	0.003	0.137	0.087	0.565	-.032	0.184	0.129	0.318
	(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
V38	0.106	-.150	1.000	-.370	0.283	-.338	-.078	-.176	0.371	-.529	-.156	-.969
	(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
V39	-.063	0.315	-.370	1.000	-.024	0.464	0.084	0.192	-.180	0.455	0.310	0.913
	(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
V40	0.464	0.003	0.283	-.024	1.000	0.479	0.494	0.169	0.739	0.590	0.842	-.170
	(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
V41	0.256	0.137	-.338	0.464	0.479	1.000	0.164	0.096	-.363	0.418	0.418	0.454
	(16)	(20)	(20)	(20)	(20)	(20)	(15)	(18)	(20)	(20)	(20)	(20)
V42	0.734	0.087	-.078	0.084	0.494	0.164	1.000	0.559	0.481	0.532	0.604	0.164
	(18)	(18)	(18)	(18)	(18)	(15)	(18)	(18)	(18)	(18)	(18)	(15)
V43	0.122	0.565	-.176	0.192	0.169	0.096	0.559	1.000	0.174	0.368	0.327	0.286
	(18)	(24)	(24)	(24)	(24)	(18)	(18)	(24)	(24)	(24)	(24)	(18)
V44	0.306	-.032	0.371	-.180	0.739	-.363	0.481	0.174	1.000	0.475	0.722	-.390
	(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
V45	0.254	0.184	-.529	0.455	0.590	0.418	0.532	0.368	0.475	1.000	0.918	0.683
	(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
V46	0.373	0.129	-.156	0.310	0.842	0.418	0.604	0.327	0.722	0.918	1.000	0.388
	(19)	(26)	(26)	(26)	(26)	(20)	(18)	(24)	(26)	(26)	(26)	(20)
V47	-.089	0.318	-.969	0.913	-.170	0.454	0.164	0.286	-.390	0.683	0.388	1.000
	(16)	(20)	(20)	(20)	(20)	(20)	(15)	(18)	(20)	(20)	(20)	(20)

Table 21

Table 21. Summary of Significant Pearson Intercorrelations Among Effectiveness Ratings and Other Variables

Two-tailed significance			
sign	0.10	0.05	0.01
+	○	+	*
-	•	-	△

		V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47
Standard time	V01						+			-			
Self-Actualizn	V02						•				-	-	△
Trust People	V03							-			△	-	-
Trust Focal	V04				-				○				
Trust Tar Avg	V05										-		
Respect People	V06										-	-	△
Respect Focal	V07		○	-						○			
Respect Tar Avg	V08			•		•				•	△	-	-
Confiden People	V09			•									-
Confiden Friend	V10												-
Confiden Focal	V11												
Confiden Tar Avg	V12		○							-			
Trust (Focal-Peo)	V13												+
Trust (Tar - Peo)	V14												+
S Disclr Friend	V15										-	•	
S Disclr Focal	V16			-				-		-			
S Disclr Tar Avg	V17			△			△		•	/			
S Disclr (Frnd-Fcl)	V18							+					
O Disclr Friend	V19						+						
O Disclr Focal	V20			•									
O Disclr Tar Avg	V21			△			△			•	-		
O Disclr (Frnd-Fcl)	V22						+						
Age	V23	△						△		-		-	
Education	V24												
Tenure	V25	•						•			△	-	
Hierchl Index	V26			*		*	*			*	*	*	
EI56	V27											○	
Ego strength-Es	V28				-					•			
Defensiveness-K	V29										△		
KD1	V30						-						
Q12 Time Focal	V31												
Q12 Kind Focal	V32										○		
Q12 Time Tar Avg	V33			-		-							
Q12 Kind Tar Avg	V34												
Q12 I's	V35												
Orgnl Eff Indvl	V36	/				*		*				+	
Orgnl Eff Group	V37		/		*				*		○		
Orgnl Eff avg Boss	V38			/		*				*	*	+	-
Orgnl Eff avg Fcl	V39		*		/		△				*	*	+
Orgnl Eff avg Slf	V40	*		*		/		+		○		*	
Orgnl Eff avg Per	V41				△		/						*
Group Eff Indvl	V42	*				+		/			○	*	
Group Eff Group	V43		*						/	+	*		
Group Eff avg Boss	V44			*		○		+		/	*	*	
Group Eff avg Fcl	V45		○	*	*			○	*	*	/	*	*
Group Eff avg Slf	V46	+		+	*	*		*		*	*	/	○
Group Eff avg Per	V47			-	+		*				*	○	/

"Before" Variables

		V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47
Standard time	V01								-				
Self-Actualizn	V02				-	-				-	-	△	
Trust People	V03			+							△	-	-
Trust Focal	V04	•				△	-			•		-	
Trust Tar Avg	V05			-		-				•			
Respect People	V06					-					△	-	
Respect Focal	V07					△			+	-			
Respect Tar Avg	V08					-		○		-		-	
Confiden People	V09						•				•		
Confiden Friend	V10	-											
Confiden Focal	V11												
Confiden Tar Avg	V12					△		•		-		-	
Trust (Focal-Peo)	V13			△									+
Trust (Tar - Peo)	V14			△									+
S Disclr Friend	V15					△							
S Disclr Focal	V16					△	-				-	-	
S Disclr Tar Avg	V17	-					-					-	
S Disclr (Frnd-Fcl)	V18						○						
O Disclr Friend	V19										•		
O Disclr Focal	V20	-				△	-			•	-	△	
O Disclr Tar Avg	V21					△	•			•		-	
O Disclr (Frnd-Fcl)	V22			○									
Age	V23	△				△		-		△	•	△	
Education	V24			-									
Tenure	V25	-						-					
Hierchl Index	V26	+				*	+	*		*	*	*	
EI56	V27					+						+	
Ego strength-Es	V28			•							-		△
Defensiveness-K	V29			+	-						-	•	•
KD1	V30									-		•	
Q12 Time Focal	V31					-					+		
Q12 Kind Focal	V32												
Q12 Time Tar Avg	V33	•				•							
Q12 Kind Tar Avg	V34												
Q12 I's	V35												
Orgnl Eff Indvl	V36	/						*					
Orgnl Eff Group	V37		/						*				
Orgnl Eff avg Boss	V38			/	•					○	△		△
Orgnl Eff avg Fcl	V39			•	/		+				+		*
Orgnl Eff avg Slf	V40					/	+	+		*	*	*	
Orgnl Eff avg Per	V41				+	+	/				○	○	+
Group Eff Indvl	V42	*				+		/	+	+	+	*	
Group Eff Group	V43		*						/		○		
Group Eff avg Boss	V44			○		*		+		/	+	*	•
Group Eff avg Fcl	V45			△	+	*	○	+	○	+	/	*	*
Group Eff avg Slf	V46					*	○	*		*	*	/	○
Group Eff avg Per	V47			△	*		+			•	*	○	/

"After" Variables

correct and if these results may be generalized to other, similar organizations, then rather severe problems with evaluation and utilization of human potential may exist. This second interpretation would tend to imply that many line evaluators penalize aggressive, confronting, coping individuals in spite of the possible organizational benefits of such behavior (cf. Peter & Hull, 1969; Whyte, 1956). Individuals without direct responsibility for the ratee (the peer groups in this study) may be more tolerant or appreciative of such confronting and adaptive behavior.

The third hypothesis concerned the evaluation of organizational development programs. This hypothesis stated:

> H 3. A "proper" organizational development program will increase individuals' feelings of trust toward their own work group and toward others while keeping the individuals aware of the demands of their tasks.

Recognizing that a long time period may be necessary for such global results, shorter-term effects were considered as more likely to be determined during this study. Expected short-run results would be the increasing of trust of one's own group, and with a longer time interval, of trust toward some other interacting groups.

During the period of this research, only two groups--P01 and P02--were involved in organizational development programs. P01 was more involved than P02. P03 investigated beginning an OD program, but had made no commitment. Company V had had some sensitivity training programs, but no organizational development work had been begun with any of the groups. Company G had no OD program.

Time-series data was available only for five groups: P01, P02, P03, V01, and V03. The temporal changes in self-actualization, in focal group trust, and in target group trust, were investigated using the Wilcoxon matched-pairs signed-ranks test and the Walsh test. These tests operate on difference scores. If there were no "real" difference between the two samples being measured (time periods in this case), one could expect positive difference scores about as often as negative scores. The Walsh test requires at least interval data, the Wilcoxon test may be used with ordinal data (Siegel, 1956: 68-87; see Winch & Campbell, 1969 on the "flexible" use of tests of significance for interpreting research data).

The Wilcoxon test is rather severe on small sample sizes; it cannot be used for $n<6$. Eight samples had at least six non-zero difference scores.

However, none of these eight samples evidenced a relationship sufficient to reach statistical significance on this test.

The Walsh test may be used with sample sizes as small as 4. It assumes that the populations are symmetrical, that the means equal the medians. For most variables of this study, the means do closely approximate the medians.

The small sample sizes prevent some "strong-looking" relationships from reaching statistical significance, even with the Walsh test. Table 22 presents the overall results of changes in trust and self-actualization for the five groups. Both statistically significant relationships and nonsignificant trends are indicated.

Table 22. Walsh Test for Temporal Changes

	Self-Actualization			Focal Trust			Average Target Trust		
QAI	2-1	3-2	3-1	2-1	3-2	3-1	2-1	3-2	3-1
P01	+		(+)	+	(+)	+	(+)		
P02		-	(+)	+	(+)	+	(+)	(-)	(+)
P03	(-)						(-)		
V01	-			(-)			(-)		
V03				(-)			-		

QAI is the Questionnaire Administration Interval. For example, 2-1 indicates the change between the first and second questionnaire administrations.

+ or - indicates a relationship significant at $p < 0.06$, one-tailed.

( ) indicates a nonsignificant trend.

Using the Walsh test, self-actualization scores significantly ($p < 0.06$, one-tailed) increased for P01 between its first and second questionnaire administration; self-actualization significantly decreased for P02 between its second and third administration, and significantly decreased for V01 between its two administrations. Self-actualization tended (nonsignificantly) to increase for P01 between its first and third administrations, and to decrease for P03 between its two administrations.

Between the first and second administrations and between the first and third administrations, focal group trust significantly increased for both P01 and P02. It showed nonsignificant increases between the second and third administrations. Focal group trust for both V01 and V03 evidenced a tendency

(nonsignificant) to decrease between its questionnaire administrations.

Target group trust significantly decreased for V03. It tended (nonsignificantly) to decrease for V01, for P03, and for P02 between its second and third questionnaire administrations. Target group trust tended to increase (nonsignificantly) between the first and second administrations for both P01 and P02; it tended to increase between the first and third administrations for P02.

The only two groups with OD programs were also the only groups to show an increase in trust. Two of the other groups evidenced decreases. The decrease may have been due to the national economic situation, internal personnel changes, or other factors (see section 4.02; cf. Hochreich & Rotter, 1970). For whatever reasons the V groups decreased, such a comparison makes the increase for P01 and P02 more noteworthy.

Self-actualization scores show a similar pattern. However, for P02, between the second and third questionnaire administrations, self-actualization shows a significant decrease. It was during this period that an appointment was made which violated the participative expectations of the group. In spite of this setback, over the entire period of the study P02 tended to show an increase in self-actualization. Changes in target group trust are less strong, but parallel those of self-actualization.

In summary, two of the main hypotheses generally were supported. Trust of the focal group and of target groups tended to be associated with self-actualization (H 1). In addition, a "proper" organizational development program was able to increase focal group trust and self-actualization (H 3). It is likely that a "proper" organizational development program focused on intergroup relations could also increase trust of target groups.

Analysis of the data for H 2 raised several questions. While clear data were not available to discount all plausible rival hypotheses, the author believes that the effectiveness ratings obtained in this study were more descriptive of raters' insecurity toward confronting, adaptive individuals than they were of the contribution those individuals made to the goals of their group and of the organization. Further study of this issue could be quite productive.

4.05 Secondary hypotheses

During the course of this study, additional relationships were hypothesized. While not a major focus of the study, these secondary hypotheses were also investigated.

The first secondary hypothesis considered the time (standardized to eight rated groups) taken to complete the questionnaire.

> HS 1a. There is a positive correlation between the time taken to complete the questionnaire and the participant's defensiveness (Q04-K); and
>
> HS 1b. a negative correlation between this time and his trust of people.

HS 1a is not supported by any of the nonparametric samplings of study participants (see Table 15); it is supported by a parametric test for all first administration data ($r = -0.279$, $n = 62$, $p<0.05$). HS 1b received some limited support. There is a statistically significant relation ($rho = -0.411$, $n = 24$) for first administration Company V data between standard time and trust of people. The other samplings do not show significance, nor do they evidence a clear trend. Other relationships with questionnaire completion time do evidence significance; these will be discussed in section 4.06.

The second secondary hypothesis stated:

> HS 2. Individuals dropping from the study will have extreme scores on some dimension. Probable dimensions and directions include long completion time, high defensiveness, low ego strength, low trust of people or of own work group, and low self-actualization.

Table 23 indicates scores on the above probable dimensions for participants who dropped from the study at Companies P and V. Scores from the last questionnaire administration before dropping are presented (defensiveness and ego strength were measured only on an individual's first administration). Company G data is not presented since it is likely that overall company events, rather than individual participant characteristics, were responsible for the lack of continued participation (see section 4.02).

Individual scores which differ by more than one standard deviation from the overall study mean (first administration data, see Table 31) may be considered as "extreme." This measure of "extremeness" is approximate; however, it may serve as a useful guide. Table 23 indicates the 14 individuals who began but did not finish the study. Some of the individuals left their work

groups for other groups in the company, some left the company, some remained with the focal group but declined to continue participating. Table 23 indicates no clear relationship between "extreme" scores and withdrawal from the study; hypothesis HS 2 is not supported.

Table 23. Selected Scores As of Last Participation For Individuals Dropping From Study.

Last Data For	Stan	K	Es	Trust-People	Trust-Focal	SA
2/P01-12		20+	53	18	24	96+
1/P01-15	79	18	15-	25+	25+	75
2/P01-16	51	13	49	15	17	81
2/P01-19	44	19	52	20	25+	77
2/P02-15	40	14	54	21+	25+	70
1/P02-16		12	38-	13	21	68
2/P02-17	33	10-	51	16	25+	76
1/V01-14	78	17	53	11-	21	47-
1/V01-19	44	13	48	14	10-	76
1/V03-11	59	14	47	18	18	89
1/V03-12		11	46	21+	17	82
1/V03-13	64	8-	54	20	20	77
1/V03-15	33	12	47	19	23	85
1/V03-17	86	17	50	8-	24	61-
1/mean	62.5	14.6	48.8	15.9	20.3	77.3
1/S.D.	30.7	4.5	7.0	4.6	4.2	13.0
mean + S.D.	93.2	19.1	55.8	20.5	24.5	90.3
mean - S.D.	31.8	10.1	41.7	11.3	16.1	64.3

Note: "+" or "-" indicate scores more "extreme" than one standard deviation.

The "collaborative" aspect of organizational development goals implies that greater sharing of relevant information may be beneficial to a work group's effectiveness. Self-disclosure scores indicate aspects of his personal and work situation an individual has revealed to another. The difference between self- and other-disclosure indicates how "equal" the information sharing may be. Hypothesis HS 3 proposed:

> HS 3. Over a period of time, with proper organizational development, the difference between self and other disclosure scores should decrease.

Changes in the self-other disclosure difference scores were investigated using the Welsh test (Siegel, 1956; section 4.04). None of the five focal groups with multiple time measurements (P01, P02, P03, V01, and V03) showed

any significant changes in the disclosure difference scores. The above analysis kept the difference between positive and negative disclosure difference scores, that is, between self-disclosure greater or less than other-disclosure. Another set of Welsh tests were made on the changes in the absolute value of the disclosure difference scores. The absolute value indicates a distance from equal disclosure without consideration of which party is the more disclosing. Again, no significant changes were found.

Based on the model of Figure 1 and its relation of trust of self and openness to experience, an inverse relationship was hypothesized (HS 4) to exist between openness to experience (Q03) and defensiveness (Q04-K). Also, HS 5 hypothesized a positive correlation between openness to experience and self-actualization (Q05). Neither hypothesis is supported for any of the samples (see Table 15).

The relation between self-actualization and group and organizational effectiveness were considered in HS 6 and HS 7. Specifically, the two hypotheses were:

> HS 6. Self-actualization and group effectiveness positively correlate.
>
> HS 7. Self-actualization and organizational effectiveness positively correlate.

Tables 16 and 17 present the correlations of selected variables with the effectivenes ratings. Two sets of data are presented: table 16 indicates questionnaire data previous to the effectiveness ratings; table 17 indicates questionnaire data after the effectiveness ratings. Neither hypothesis is supported. Table 16 indicates no significant correlations between self-actualization and any effectiveness ratings. Table 17 does indicate some significant correlations, but they are in a direction opposite to that of the hypotheses. Specifically, the average individual effectiveness toward organizational goals (the focal group's average of "self" ratings) correlates -0.528 ($p<0.01$) with self-actualization. Self-actualization is also negatively correlated with ratings of effectiveness toward group goals as reported by the focal group ($r = -0.441$, $p<0.05$), by the group's bosses ($r = -0.503$, $p<0.01$), and by the average individual effectiveness toward group goals. However, as discussed in section 4.04, the behavior of the Q15 scale raises several plausible rival hypotheses.

A more "distant" relationship was considered in HS 8, which postulated

a positive correlation between ego strength and self-disclosure. HS 8 was not supported. Nonsignificant correlations were found for self-disclosure to the focal group, to the best friend, and to the average of target groups.

A positive correlation between decision evaluation (Q09) and effectiveness (Q15) was suggested as HS 9. However, due to the variability in the use of Q09, this hypothesis was not tested.

In summary, none of the secondary hypotheses was supported. The hypothesized relations between time to complete the questionnaire and defensiveness (HS 1a), and between completion time and trust of people (HS 1b) evidenced tendencies in the hypothesized directions.

4.06 Additional findings

In addition to the testing of hypotheses, another major concern of this study was the investigation of some of the individual and organizational correlates of trust. Because a large number of variables was involved, computer analyses using Pearson product-moment correlations were used (see section 3.09). Table 24 presents the Pearson intercorrelations among 35 variables from first administration data. Table 25 summarizes on a single page the significant Pearson intercorrelations. (Table 26 presents Spearman rank correlations for selected variables from first administration data.)

In an exploratory investigation of the intercorrelations among a large number of variables, it may be expected that some relationships will evidence statistical significance by chance. Although this caution should be kept in mind, detailed consideration of "interesting" relationships in Table 24 may be investigated. (All significance tests reported in this section and in Table 25 are two-tailed.)

The standardized time to complete the questionnaire (Variable 01 in Table 24) is significantly and negatively related to self-actualization (V02, $r = -0.322$, $p<0.05$), to transformed confidence in the focal group (V11, $r = -0.323$, $p<0.01$), to ego strength (V28, $r = -0.322$, $p<0.01$), and to defensiveness (V29, $r = -0.279$, $p<0.05$). This standardized time, V01, is an extremely overt, behavioral measure (assuming accurate self reports, and there was little reason--conscious or unconscious--for participants to distort reading a clock). This cluster of correlated variables (V02, V11, V28, V29) may relate to a generalized factor involving ease of decision-making.

Self-actualization (Variable 02 in the table) is significantly correlated with standard time (V01, $r = -0.322$, $p<0.05$), average trust of target groups (V05, $r = 0.256$, $p<0.05$), average respect for target groups (V08, $r = 0.287$, $p<0.05$), transformed confidence in the focal group (V11, $r = 0.407$, $p<0.01$), other-disclosure from friend (V19, $r = -0.258$, $p<0.05$), ego strength, (V28, $r = 0.314$, $p<0.01$), and the time importance of the work relationship with the focal group (V31, $r = 0.426$, $p<0.05$). Both the focal group (V11) and the target groups (V05, V08) appear to influence the satisfactoriness of one's working envirnoment. Not immediately needing the work provided by one's focal group members may contribute to work satisfaction through reducing the probable occurence of conflict. Ego strength (V28) may be conceived as a generalized ability to cope and adapt; it is understandable that such an ability will relate

Table 24A . Pearson Intercorrelations from First Administration Data, with Sample Sizes

V	Variable	V01	V02	V03	V04	V05	V06	V07	V08	V09	V10	V11	V12
01	Standard time	1.000	-.322	-.169	0.087	-.153	-.107	0.001	-.061	-.123	0.022	-.323	0.061
		(62)	(62)	(62)	(61)	(62)	(62)	(61)	(62)	(62)	(61)	(62)	(61)
02	Self-Actualization	-.322	1.000	0.081	0.174	0.256	0.101	0.070	0.287	0.174	-.053	0.407	0.043
		(62)	(71)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
03	Trust People	-.169	0.081	1.000	0.292	0.532	0.424	0.058	0.078	0.239	0.177	0.100	0.101
		(62)	(71)	(72)	(71)	(72)	(72)	(71)	(72)	(71)	(70)	(72)	(71)
04	Trust Focal	0.087	0.174	0.292	1.000	0.522	0.192	0.504	0.310	0.086	0.053	0.107	0.126
		(61)	(70)	(71)	(71)	(71)	(71)	(71)	(71)	(70)	(69)	(71)	(70)
05	Trust Tar Avg	-.153	0.256	0.532	0.522	1.000	0.198	0.153	0.345	0.229	0.330	0.435	0.238
		(62)	(71)	(72)	(71)	(72)	(72)	(71)	(72)	(71)	(70)	(72)	(71)
06	Respect People	-.107	0.101	0.424	0.192	0.198	1.000	0.013	0.233	0.118	0.169	-.063	0.025
		(62)	(71)	(72)	(71)	(72)	(72)	(71)	(72)	(71)	(70)	(72)	(71)
07	Respect Focal	0.001	0.070	0.059	0.504	0.153	0.013	1.000	0.553	0.068	0.089	0.118	-.032
		(61)	(70)	(71)	(71)	(71)	(71)	(71)	(71)	(70)	(69)	(71)	(70)
08	Respect Tar Avg	-.061	0.287	0.078	0.310	0.345	0.233	0.553	1.000	0.042	0.110	0.092	0.143
		(62)	(71)	(72)	(71)	(72)	(72)	(71)	(72)	(71)	(70)	(72)	(71)
09	Trans Confidence People	-.123	0.174	0.239	0.086	0.229	0.118	0.068	0.042	1.000	0.449	0.354	0.302
		(62)	(70)	(71)	(70)	(71)	(71)	(70)	(71)	(71)	(70)	(71)	(70)
10	Trans Confidence Friend	0.022	-.053	0.177	0.053	0.330	0.169	0.089	0.110	0.449	1.000	0.384	0.146
		(61)	(69)	(70)	(69)	(70)	(70)	(69)	(70)	(70)	(70)	(70)	(69)
11	Trans Confidence Focal	-.323	0.407	0.100	0.107	0.435	-.063	0.118	0.092	0.354	0.384	1.000	0.225
		(62)	(71)	(72)	(71)	(72)	(72)	(71)	(72)	(71)	(70)	(72)	(71)
12	Trans Confidence Tar Avg	0.061	0.042	0.101	0.126	0.238	0.025	-.032	0.014	0.302	0.146	0.225	1.000
		(61)	(70)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(71)
13	Trust (Focal-People)	0.235	0.066	-.652	0.535	-.055	-.222	0.348	0.180	-.138	-.114	-.001	0.012
		(61)	(70)	(71)	(71)	(71)	(71)	(71)	(71)	(70)	(69)	(71)	(70)
14	Trust (Tar Avg-People)	0.060	0.143	-.635	0.150	0.317	-.294	0.073	0.227	-.059	0.100	0.285	0.104
		(62)	(71)	(72)	(71)	(72)	(72)	(71)	(72)	(71)	(70)	(72)	(71)
15	Self Disclosure Friend	-.021	-.218	0.065	-.164	-.075	0.094	-.258	-.109	-.121	-.214	-.185	-.064
		(62)	(70)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
16	Self Disclosure Focal	-.036	-.010	0.136	0.098	0.080	-.120	0.005	-.123	-.002	-.304	0.147	0.022
		(61)	(69)	(70)	(70)	(70)	(70)	(70)	(70)	(69)	(68)	(70)	(69)
17	Self Disclosure Tar Avg	-.178	0.000	-.004	-.110	0.002	-.155	-.271	-.170	-.024	-.163	-.037	0.146
		(61)	(69)	(70)	(69)	(70)	(70)	(69)	(70)	(69)	(68)	(70)	(70)
18	Self Disclsr (Frnd-Focal)	-.040	-.188	-.066	-.268	-.154	0.159	-.293	-.135	-.172	0.030	-.309	-.099
		(62)	(70)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)

Table 24B . Pearson Intercorrelations from First Administration Data, with Sample Sizes

V	Variable	V01	V02	V03	V04	V05	V06	V07	V08	V09	V10	V11	V12
19	Othr Disclosure Friend	0.021	-.258	0.091	-.171	-.085	-.062	-.284	-.222	-.155	-.246	-.187	-.084
		(62)	(70)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
20	Othr Disclosure Focal	0.101	-.081	0.084	0.024	0.006	-.117	-.067	-.092	-.084	-.375	0.078	0.043
		(61)	(69)	(70)	(70)	(70)	(70)	(70)	(70)	(69)	(68)	(70)	(69)
21	Othr Disclosure Tar Avg	-.167	-.044	-.009	-.173	-.088	-.195	-.283	-.217	-.045	-.167	0.050	0.157
		(61)	(69)	(70)	(69)	(70)	(70)	(69)	(70)	(69)	(68)	(70)	(70)
22	Othr Disclsr (Frnd-Focal)	-.103	-.178	-.007	-.227	-.114	0.141	-.272	-.186	-.142	0.072	-.274	-.137
		(62)	(70)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
23	Age	0.050	0.013	-.025	0.228	-.001	-.012	0.093	-.063	-.081	-.098	-.090	0.216
		(59)	(66)	(67)	(66)	(67)	(67)	(66)	(67)	(66)	(65)	(67)	(66)
24	Education	-.061	-.077	-.251	-.052	-.158	-.228	-.112	-.173	-.203	-.020	0.001	0.147
		(56)	(64)	(65)	(64)	(65)	(65)	(64)	(65)	(64)	(63)	(65)	(64)
25	Tenure	0.161	-.054	0.054	0.235	-.044	0.077	0.013	-.050	-.091	-.157	-.161	0.199
		(59)	(66)	(67)	(66)	(67)	(67)	(66)	(67)	(66)	(65)	(67)	(66)
26	Hierarchical Index	0.140	-.216	0.011	-.114	-.042	0.017	0.019	0.017	0.734	0.095	-.214	-.214
		(59)	(68)	(69)	(68)	(69)	(69)	(68)	(69)	(68)	(67)	(69)	(68)
27	Experience Inquiry-56	-.025	-.014	0.072	-.079	0.002	0.071	0.148	0.215	0.028	0.026	0.015	-.182
		(62)	(71)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
28	Ego strength-Es	-.322	0.314	-.069	-.124	-.007	-.060	-.085	-.109	0.136	0.039	0.360	-.064
		(62)	(71)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
29	Defensiveness-K	-.279	0.120	0.165	0.187	0.225	0.131	0.125	-.017	-.051	0.183	0.201	0.028
		(62)	(71)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
30	KD1	-.156	-.004	0.110	0.174	0.227	0.062	0.156	-.106	0.050	0.100	0.242	0.131
		(62)	(71)	(71)	(70)	(71)	(71)	(70)	(71)	(70)	(69)	(71)	(70)
31	Q12 Time Focal	-.228	0.426	0.088	0.100	0.144	0.000	-.009	0.121	-.036	-.129	0.115	0.171
		(23)	(24)	(25)	(25)	(25)	(25)	(25)	(25)	(24)	(23)	(25)	(25)
32	Q12 Kind Focal	0.290	-.216	-.226	-.245	-.210	-.080	-.293	-.285	-.290	0.222	-.140	-.150
		(25)	(26)	(27)	(27)	(27)	(27)	(27)	(27)	(26)	(25)	(27)	(27)
33	Q12 Time Tar Avg	-.081	-.117	-.156	0.221	0.121	-.260	0.138	0.041	0.102	-.048	-.081	-.117
		(27)	(29)	(30)	(29)	(30)	(30)	(29)	(30)	(29)	(28)	(27)	(29)
34	Q12 Kind Tar Avg	0.259	0.077	-.469	0.010	0.096	-.242	-.193	0.094	-.127	0.019	0.084	0.139
		(28)	(30)	(31)	(30)	(31)	(31)	(30)	(31)	(30)	(29)	(31)	(31)
35	Q12 I's	0.014	-.041	-.042	-.258	-.179	-.320	-.037	-.048	0.233	-.188	-.119	0.099
		(23)	(24)	(25)	(24)	(25)	(25)	(24)	(25)	(24)	(23)	(25)	(25)
	Mean	62.47	77.25	15.93	20.32	17.58	3.12	3.94	3.43	73.20	88.64	85.85	75.44
	Standard deviation	30.66	12.96	4.65	4.19	3.79	0.69	0.77	0.62	14.15	9.34	11.51	15.09

Table 24C . Pearson Intercorrelations from First Administration Data, with Sample Sizes

V	Variable	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24
01	Standard time	0.235	0.060	-.021	-.036	-.178	-.040	0.021	0.101	-.167	-.103	0.050	-.061
		(61)	(62)	(62)	(61)	(61)	(62)	(62)	(61)	(61)	(62)	(59)	(56)
02	Self-Actualization	0.066	0.143	-.218	-.010	0.000	-.188	-.258	-.081	-.044	-.178	0.013	-.077
		(70)	(71)	(70)	(69)	(69)	(70)	(70)	(69)	(69)	(70)	(66)	(64)
03	Trust People	-.652	-.635	0.065	0.137	-.004	-.066	0.091	0.084	-.009	-.007	-.025	-.251
		(71)	(72)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(67)	(65)
04	Trust Focal	0.535	0.149	-.164	0.098	-.110	-.268	-.171	0.025	-.173	-.227	0.228	-.052
		(71)	(71)	(70)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(66)	(64)
05	Trust Tar Avg	-.055	0.317	-.075	0.080	0.002	-.154	-.085	0.006	-.088	-.114	-.001	-.158
		(71)	(72)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(67)	(65)
06	Respect People	-.222	-.294	0.094	-.120	-.155	0.159	0.062	-.117	-.195	0.141	-.012	-.228
		(71)	(72)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(67)	(65)
07	Respect Focal	0.348	0.073	-.258	0.005	-.271	-.293	-.284	-.067	-.283	-.272	0.093	-.112
		(71)	(71)	(70)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(66)	(64)
08	Respect Tar Avg	0.180	0.227	-.190	-.123	-.170	-.135	-.222	-.092	-.217	-.186	-.063	-.173
		(71)	(72)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(67)	(65)
09	Trans Confidence People	-.138	-.059	-.121	-.002	-.024	-.172	-.155	-.084	-.045	-.142	-.081	-.203
		(70)	(71)	(70)	(69)	(69)	(70)	(70)	(69)	(69)	(70)	(66)	(64)
10	Trans Confidence Friend	-.114	0.100	-.214	-.304	-.163	0.030	-.246	-.375	-.167	0.072	-.098	-.020
		(69)	(70)	(69)	(68)	(68)	(69)	(69)	(68)	(68)	(69)	(65)	(63)
11	Trans Confidence Focal	-.001	0.285	-.185	0.147	0.037	-.309	-.187	0.078	0.050	-.274	-.090	0.001
		(71)	(72)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(67)	(65)
12	Trans Confidence Tar Avg	0.012	0.105	-.064	0.022	0.146	-.099	-.084	0.043	0.157	-.137	0.216	0.147
		(70)	(71)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(70)	(66)	(64)
13	Trust (Focal-People)	1.000	0.679	-.187	-.043	-.084	-.171	-.217	-.055	-.129	-.204	0.201	0.177
		(71)	(71)	(70)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(66)	(64)
14	Trust (Tar Avg-People)	0.679	1.000	-.141	-.080	0.006	-.067	-.179	-.088	-.070	-.096	0.026	0.133
		(71)	(72)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(67)	(65)
15	Self Disclosure Friend	-.187	-.141	1.000	0.515	0.349	0.549	0.943	0.513	0.374	0.493	-.228	0.015
		(70)	(71)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(66)	(64)
16	Self Disclosure Focal	-.043	-.080	0.515	1.000	0.431	-.290	0.530	0.860	0.496	-.220	-.181	-.031
		(70)	(70)	(70)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(65)	(63)
17	Self Disclosure Tar Avg	-.084	0.006	0.349	0.431	1.000	0.029	0.277	0.364	0.949	-.009	0.131	0.166
		(69)	(70)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(70)	(65)	(63)
18	Self Disclsr (Frnd-Focal)	-.171	-.067	0.549	-.290	0.029	1.000	0.512	-.171	0.009	0.918	-.059	0.061
		(70)	(71)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(66)	(64)

Table 24D. Pearson Intercorrelations from First Administration Data, with Sample Sizes.

V	Variable	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24
19	Othr Disclosure Friend	-.217	-.179	0.943	0.530	0.277	0.512	1.000	0.591	0.319	0.510	- 269	0.002
		(70)	(71)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(66)	(64)
20	Othr Disclosure Focal	-.055	-.088	0.513	0.860	0.364	-.171	0.591	1.000	0.470	-.286	-.183	-.026
		(70)	(70)	(70)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(65)	(63)
21	Othr Disclosure Tar Avg	-.129	-.070	0.374	0.496	0.949	0.009	0.319	0.470	1.000	-.048	0.132	0.186
		(69)	(70)	(70)	(69)	(70)	(70)	(70)	(69)	(70)	(70)	(65)	(63)
22	Othr Disclsr (Frnd-Focal)	-.204	-.096	0.493	- 220	-.009	0.918	0.510	-.286	-.048	1.000	-.088	0.047
		(70)	(71)	(71)	(70)	(70)	(71)	(71)	(70)	(70)	(71)	(66)	(64)
23	Age	0.201	0.026	-.228	-.181	0.131	-.059	-.269	-.183	0.132	-.088	1 000	0.384
		(66)	(67)	(66)	(65)	(65)	(66)	(66)	(65)	(65)	(66)	(67)	(64)
24	Education	0.177	0.133	0.015	-.031	0.166	0.061	0.002	-.026	0.186	0.047	0.384	1.000
		(64)	(65)	(64)	(63)	(63)	(64)	(64)	(63)	(63)	(64)	(64)	(65)
25	Tenure	0.140	-.098	-.042	0.122	0.152	-.108	-.005	0.121	0.172	-.084	0.735	0.213
		(66)	(67)	(66)	(65)	(65)	(66)	(66)	(65)	(65)	(66)	(66)	(64)
26	Hierarchical Index	-.094	-.050	-.118	-.197	- 500	-.036	-.066	-.215	-.526	0.041	-.409	-.366
		(68)	(69)	(68)	(67)	(67)	(68)	(68)	(67)	(67)	(68)	(67)	(65)
27	Experience Inquiry-56	-.126	-.079	0.252	0.019	-.007	0.216	0.268	0.161	-.019	0.126	-.533	-.258
		(70)	(71)	(70)	(69)	(69)	(70)	(70)	(69)	(69)	(70)	(66)	(64)
28	Ego strength-Es	-.040	0.070	0.081	0.125	0.160	0.018	0.042	0.109	0.150	-.015	0.057	0.187
		(70)	(71)	(70)	(69)	(69)	(70)	(70)	(69)	(69)	(70)	(66)	(64)
29	Defensiveness-K	-.002	0.020	0.011	-.032	0.191	0.084	-.026	-.024	0.118	0.044	0.188	0.093
		(70)	(71)	(70)	(69)	(69)	(70)	(70)	(69)	(69)	(70)	(66)	(64)
30	KD1	0.038	0.084	-.087	-.009	0.027	-.044	-.102	-.062	0.017	-.020	0.469	0.048
		(70)	(71)	(70)	(69)	(69)	(70)	(70)	(69)	(69)	(70)	(66)	(64)
31	Q12 Time Focal	0.024	0.057	0.040	0.179	0.187	-.134	-.032	-.022	0.168	-.018	-.044	-.059
		(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(23)	(23)
32	Q12 Kind Focal	-.042	0.016	0.030	-.001	-.013	0.036	0.049	0.137	0.025	-.092	0.170	0.245
		(27)	(27)	(27)	(27)	(27)	(27)	(27)	(27)	(27)	(27)	(25)	(25)
33	Q12 Time Tar Avg	0.290	0.216	0.214	0.150	0.351	-.014	0.224	0.229	0.341	-.063	0.303	0.444
		(29)	(30)	(30)	(29)	(30)	(30)	(39)	(29)	(30)	(30)	(28)	(28)
34	Q12 Kind Tar Avg	0.348	0.429	0.144	0.052	0.160	-.146	0.072	0.088	0.143	-.223	0.012	0.272
		(30)	(31)	(31)	(30)	(31)	(31)	(31)	(30)	(31)	(31)	(29)	(29)
35	Q12 I's	-.190	-.131	0.064	-.165	0.154	-.010	0.064	-.189	0.103	0.014	0.119	0.202
		(24)	(25)	(25)	(24)	(25)	(25)	(25)	(24)	(25)	(25)	(23)	(23)
	Mean	4.37	1.65	81.01	65.70	40.17	16.24	80.17	65.44	39.90	15.65	36.13	17.12
	Standard deviation	5.29	4.15	12.40	9.68	6.01	13.57	13.38	11.20	6.15	14.01	11.71	2.46

Table 24E. Pearson Intercorrelations from First Administration Data, with Sample Sizes.

V	Variable	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35
01	Standard time	0.161	0.140	-.025	-.322	-.279	-.156	-.228	0.290	-.081	0.259	0.014
		(59)	(59)	(62)	(62)	(62)	(62)	(23)	(25)	(27)	(28)	(23)
02	Self-Actualization	-.054	-.216	-.014	0.314	0.120	-.004	0.426	-.216	-.117	0.077	-.041
		(66)	(68)	(71)	(71)	(71)	(71)	(24)	(26)	(29)	(30)	(24)
03	Trust People	0.536	0.011	0.072	-.069	0.165	0.110	0.088	-.226	-.156	-.469	-.042
		(67)	(69)	(71)	(71)	(71)	(71)	(25)	(27)	(30)	(31)	(25)
04	Trust Focal	0.235	-.114	- 079	-.124	0.187	0.174	0.099	-.245	0.221	0.009	-.258
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(29)	(30)	(24)
05	Trust Tar Avg	-.044	-.042	0.002	-.007	0.225	0.227	0.144	-.210	0.121	0.096	-.179
		(67)	(69)	(71)	(71)	(71)	(71)	(25)	(27)	(30)	(31)	(25)
06	Respect People	0.077	0.017	0.071	-.060	0.131	0.062	0.000	-.080	-.260	-.242	-.320
		(67)	(69)	(71)	(71)	(71)	(71)	(25)	(27)	(30)	(31)	(25)
07	Respect Focal	0.013	0.019	0.148	-.085	0.125	0.156	-.009	-.293	0.138	-.193	-.037
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(29)	(30)	(24)
08	Respect Tar Avg	-.050	0.017	0.215	-.109	-.017	-.106	0.121	-.285	0.041	0.094	-.048
		(67)	(69)	(71)	(71)	(71)	(71)	(25)	(27)	(30)	(31)	(25)
09	Trans Confidence People	-.091	0.073	0.028	0.136	-.051	0.050	-.036	-.290	0.102	-.127	0.233
		(66)	(68)	(70)	(70)	(70)	(70)	(24)	(26)	(29)	(30)	(24)
10	Trans Confidence Friend	-.157	0.095	0.026	0.039	0.183	0.100	-.129	0.222	-.048	0.019	-.188
		(65)	(67)	(69)	(69)	(69)	(69)	(23)	(25)	(28)	(29)	(23)
11	Trans Confidence Focal	-.161	-.214	0.015	0.360	0.201	0.242	0.115	-.140	0.324	0.083	-.119
		(67)	(69)	(71)	(71)	(71)	(71)	(25)	(27)	(30)	(31)	(25)
12	Trans Confidence Tar Avg	0.199	-.214	-.182	-.064	0.028	0.131	0.171	-.149	0.182	0.139	0.099
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(30)	(31)	(25)
13	Trust (Focal-People)	0.140	-.094	-.126	-.040	-.002	0.038	0.024	-.042	0.290	0.348	-.190
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(29)	(30)	(24)
14	Trust (Tar Avg-People)	-.098	-.050	-.079	0.070	0.020	0.084	0.057	0.016	0.216	0.429	-.131
		(67)	(69)	(71)	(71)	(71)	(71)	(25)	(27)	(30)	(31)	(25)
15	Self Disclosure Friend	-.042	-.118	0.252	0.081	0.011	-.087	0.040	0.030	0.214	0.144	0.064
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(30)	(31)	(25)
16	Self Disclosure Focal	0.122	-.197	0.019	0.125	-.032	-.009	0.179	-.001	0.150	0.052	-.165
		(65)	(67)	(69)	(69)	(69)	(69)	(25)	(27)	(29)	(30)	(24)
17	Self Disclosure Tar Avg	0.152	-.500	-.007	0.160	0.191	0.027	0.187	-.013	0.351	0.160	0.154
		(65)	(67)	(69)	(69)	(69)	(69)	(25)	(27)	(30)	(31)	(25)
18	Self Disclsr (Frnd-Focal)	-.108	-.036	0.216	0.018	0.084	-.044	-.134	0.036	-.014	-.146	-.010
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(30)	(31)	(25)

Table 24F. Pearson Intercorrelations from First Administration Data, with Sample Sizes.

V	Variable	V25	V26	V27	V28	V29	V30	V31	V32	V33	V34	V35
19	Othr Disclosure Friend	-.005	-.066	0.268	0.042	-.027	-.102	-.032	0.049	0.224	0.072	0.064
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(30)	(31)	(25)
20	Othr Disclosure Focal	0.121	-.215	0.161	0.109	-.024	-.062	-.022	0.137	0.229	0.088	-.189
		(65)	(67)	(69)	(69)	(69)	(69)	(25)	(27)	(29)	(30)	(24)
21	Othr Disclosure Tar Avg	0.172	-.526	-.019	0.150	0.118	0.017	0.168	0.025	0.341	0.143	0.103
		(65)	(67)	(69)	(69)	(69)	(69)	(25)	(27)	(30)	(31)	(25)
22	Othr Disclsr (Frnd-Focal)	-.084	0.041	0.126	-.015	0.044	-.020	-.018	-.092	-.063	-.223	0.014
		(66)	(68)	(70)	(70)	(70)	(70)	(25)	(27)	(30)	(31)	(25)
23	Age	0.735	-.409	-.533	0.057	0.188	0.269	-.044	0.170	0.303	0.012	0.119
		(66)	(67)	(66)	(66)	(66)	(66)	(23)	(25)	(28)	(29)	(23)
24	Education	0.213	-.366	-.258	0.187	0.093	0.048	-.059	0.249	0.444	0.272	0.202
		(64)	(65)	(64)	(64)	(64)	(64)	(23)	(25)	(28)	(29)	(23)
25	Tenure	1.000	-.425	-.564	-.011	0.001	0.005	0.150	-.050	0.393	-.059	0.186
		(67)	(67)	(66)	(66)	(66)	(66)	(23)	(25)	(28)	(29)	(23)
26	Hierarchical Index	-.425	1.000	0.316	-.330	-.298	-.181	-.229	0.244	-.345	-.039	-.149
		(67)	(69)	(68)	(68)	(68)	(68)	(23)	(25)	(28)	(29)	(23)
27	Experience Inquiry-56	-.564	0.316	1.000	-.104	-.161	-.061	-.279	0.093	0.068	-.087	-.065
		(66)	(68)	(71)	(71)	(71)	(71)	(24)	(26)	(29)	(39)	(24)
28	Ego strength-Es	-.011	-.330	-.104	1.000	0.322	0.040	0.376	-.105	0.138	0.195	-.153
		(66)	(68)	(71)	(71)	(71)	(71)	(24)	(26)	(29)	(30)	(24)
29	Defensiveness-K	0.001	-.298	-.161	0.322	1.000	0.503	-.068	-.349	0.169	0.096	-.209
		(66)	(68)	(71)	(71)	(71)	(71)	(24)	(26)	(29)	(30)	(24)
30	KD1	0.005	-.181	-.061	0.040	0.503	1.000	-.087	-.351	0.125	0.071	-.237
		(66)	(68)	(71)	(71)	(71)	(71)	(24)	(26)	(29)	(30)	(24)
31	Q12 Time Focal	0.150	-.229	-.279	0.376	-.068	-.087	1.000	-.577	0.215	0.242	0.274
		(23)	(23)	(24)	(24)	(24)	(24)	(25)	(25)	(25)	(25)	(21)
32	Q12 Kind Focal	-.050	0.244	0.083	-.105	-.349	-.351	-.577	1.000	-.105	0.095	-.226
		(25)	(25)	(26)	(26)	(26)	(26)	(25)	(27)	(26)	(27)	(22)
33	Q12 Time Tar Avg	0.393	-.345	0.068	0.318	0.169	0.125	0.215	-.105	1.000	0.248	0.401
		(28)	(28)	(29)	(29)	(29)	(29)	(25)	(26)	(30)	(30)	(25)
34	Q12 Kind Tar Avg	-.059	-.039	-.087	0.195	0.096	0.071	0.242	0.095	0.248	1.000	-.072
		(29)	(29)	(30)	(30)	(30)	(30)	(25)	(27)	(30)	(31)	(25)
35	Q12 I's	0.186	-.149	-.065	-.153	-.209	-.237	0.274	-.226	0.401	-.072	1.000
		(23)	(23)	(24)	(24)	(24)	(24)	(21)	(22)	(25)	(25)	(25)
	Mean	8.87	82.36	28.18	48.79	14.59	4.73	2.36	2.74	3.47	2.77	2.00
	Standard deviation	8.59	14.10	7.47	6.99	4.50	2.95	1.25	0.86	0.90	0.50	1.15

Table 25. Summary of Significant Pearson Intercorrelations

Standard time	V01
Self-Actualization	V02
Trust People	V03
Trust Focal	V04
Trust Tar Avg	V05
Respect People	V06
Respect Focal	V07
Respect Tar Avg	V08
Trans Confidence People	V09
Trans Confidence Friend	V10
Trans Confidence Focal	V11
Trans Confidence Tar Avg	V12
Trust (Focal-People)	V13
Trust (Tar Avg-People)	V14
Self Disclosure Friend	V15
Self Disclosure Focal	V16
Self Disclosure Tar Avg	V17
Self Disclsr (Frnd-Focal)	V18
Othr Disclosure Friend	V19
Othr Disclosure Focal	V20
Othr Disclosure Tar Avg	V21
Other Disclsr (Frnd-Focal)	V22
Age	V23
Education	V24
Tenure	V25
Hierarchical Index	V26
Experience Inquiry-56	V27
Ego strength-Es	V28
Defensiveness-K	V29
KD1	V30
Q12 Time Focal	V31
Q12 Kind Focal	V32
Q12 Time Tar Avg	V33
Q12 Kind Tar Avg	V34
Q12 I's	V35

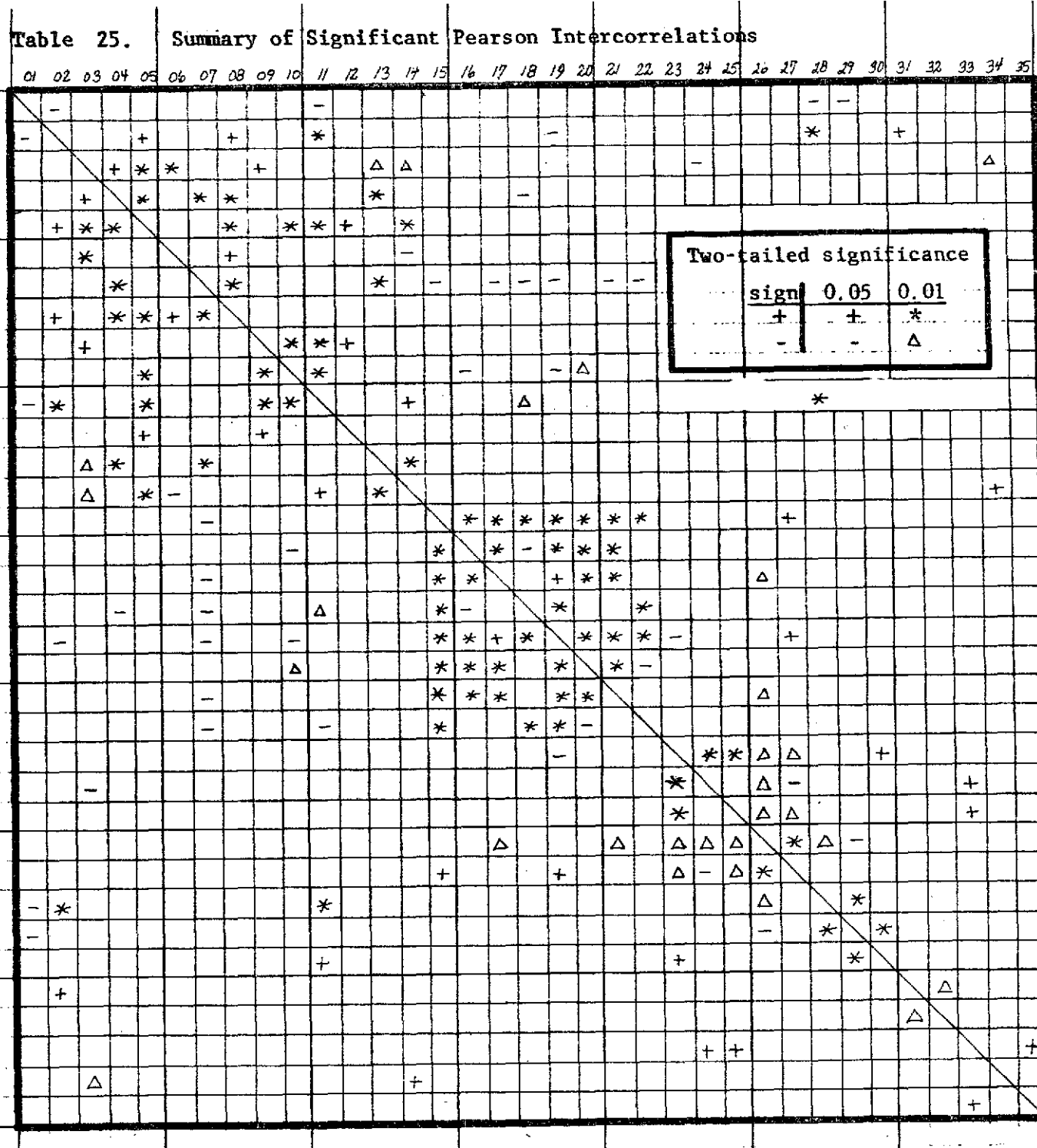


Table 25

Table 26 . Spearman Correlations (with Student's t) for Selected Variables from First Administration Data

Variable	V01		V02		V03		V04		V05		V13		V14	
	rho	t	rho	t	rho	t	rho	t	rho	t	rho	t	rho	t
N	62		72		72		72		72		72		72	
V02	-.279	-2.252*			0.138	1.162	0.300	2.632*	0.287	2.503*	0.160	1.352	0.107	0.902
V03	-.073	-0.570	0.138	1.162			0.389	3.535**	0.538	5.344**	-.620	-6.603**	-.698	-8.154**
V04	0.107	0.835	0.300	2.632*	0.389	3.535**			0.563	5.696**	0.381	3.442**	-.035	-0.296
V05	-.000	-0.002	0.287	2.503*	0.538	5.344**	0.563	5.696**			-.111	-0.938	0.159	1.350
V06	-.021	-0.161	0.127	1.074	0.442	4.124**	0.203	1.735	0.187	1.588	-.239	-2.056**	-.361	-3.237**
V07	-.037	-0.290	0.163	1.384	0.131	1.106	0.547	5.474**	0.244	2.101*	0.291	2.546*	0.030	0.247
V08	-.087	-0.680	0.343	3.051**	0.162	1.370	0.338	3.002**	0.454	4.258**	0.044	0.365	0.137	1.154
V09	-.176	-1.387	0.137	1.158	0.174	1.481	0.068	0.574	0.077	0.650	-.127	-1.073	-.147	-1.244
V10	0.091	0.707	-.081	-0.683	0.093	0.778	-.037	-0.311	0.180	1.528	-.178	-1.512	0.024	0.199
V11	-.255	-2.043*	0.283	2.054*	0.088	0.737	0.105	0.886	0.364	3.274**	0.021	0.175	0.244	2.107*
V12	0.039	0.302	0.056	0.466	0.116	0.979	0.157	1.330	0.336	2.986**	-.014	-0.119	0.135	1.141
V13	0.110	0.859											0.626	6.715**
V14	0.000	0.002									0.626	6.715**		
V15	0.012	0.092	-.204	-1.742	0.067	0.560	-.173	-1.468	-.126	-1.060	-.176	-1.500	-.129	-1.086
V16	0.039	0.303	0.027	0.229	0.153	1.298	0.178	1.513	0.141	1.193	0.060	0.507	0.007	0.059
V17	-.211	-1.676	-.010	-0.086	-.037	-0.313	-.100	-0.844	0.052	0.433	0.021	0.176	0.139	1.178
V18	0.034	0.263	-.306	-2.687*	-.051	-0.427	-.327	-2.893**	-.247	-2.136*	-.219	-1.874	-.138	-1.170
V19	0.100	0.780	-.276	-2.400*	0.031	-0.261	-.083	-0.780	-.151	-1.280	-.202	-1.730	-.161	-1.368
V20	0.177	1.392	-.151	-1.277	0.116	0.974	0.144	1.220	0.089	0.747	0.049	0.408	0.035	0.292
V21	-.219	-1.739	-.064	-0.540	-.091	-0.766	-.128	-1.083	-.020	-0.164	0.072	0.607	0.158	1.339
V22	-.045	-0.346	-.271	-2.360*	0.030	0.249	-.290	-2.539*	-.201	-1.718	-.276	-2.398**	-.179	-1.525
V23	-.026	-0.198	0.133	1.126	-.024	-0.200	0.136	1.152	0.028	0.238	0.189	1.610	0.034	0.287
V24	-.029	-0.222	-.050	-0.416	-.236	-2.032*	-.068	-0.568	-.172	-1.457	0.320	2.825**	0.185	1.576
V25	0.089	0.690	0.140	1.179	0.030	0.253	0.217	1.860	0.038	0.317	0.200	1.711	-.000	-0.001
V26	0.190	1.504	-.088	-0.738	-.020	-0.170	-.066	-0.557	-.067	-0.560	-.087	-0.728	-.055	-0.462
V27	0.029	0.229	-.094	-0.791	0.090	0.753	-.035	-0.292	0.044	0.365	-.166	-1.408	-.083	-0.699
V28	-.311	-2.534*	0.288	2.513*	0.028	0.231	-.012	-0.100	0.056	0.468	-.007	-0.060	0.064	0.534
V29	-.198	-1.567	0.173	1.473	0.153	1.296	0.153	1.293	0.176	1.492	-.006	-0.045	0.001	0.010
V30	-.129	-1.011	-.019	-0.160	0.039	0.330	0.104	0.872	0.090	0.758	-.007	-0.056	0.030	0.248
V31	-.124	-0.673	0.478	2.930**	0.131	0.714	0.239	1.323	0.202	1.111	-.051	-0.275	-.084	-0.456
V32	0.247	1.375	-.120	-0.653	-.172	-0.940	0.035	0.189	0.021	0.111	0.178	0.973	0.135	0.732
V33	-.208	-1.143	-.094	-0.507	-.062	-0.333	0.037	0.198	0.039	0.210	0.025	0.136	0.054	0.291
V34	-.098	-0.528	-.029	-0.155	0.052	0.280	-.176	-0.960	-.088	-0.474	-.227	-1.258	-.235	-1.303
V35	0.277	1.554	0.072	0.388	-.480	-2.945**	-.019	-0.104	0.019	0.075	0.381	2.222*	0.348	2.001

Two-tailed significance tests: *p<0.05, **p<0.01

to self-actualization. In view of the many other parameters influencing any relation between personality and working conditions, it is noteworthy that ego strength does show significant relations with several work-related variables.

In addition to its significant relations with scale completion time (V01) and self-actualization (V02), ego strength (Variable 28) also correlates significantly with transformed confidence in the focal group (V11, $r = 0.360$, $p<0.01$), defensiveness (V29, $r = 0.322$, $p<0.01$), and hierarchical position (V26, $r = -0.330$, $p<0.01$) (cf. Miles, 1965). The correlation between ego strength and defensiveness is close to that found by Barron (1953: 330) during his development of the Es scale. A smaller hierarchical index indicates a "higher" organizational position. Thus the correlation between V28 and V26 may indicate that those individuals with greater adaptive ability (greater ego strength) are more likely to rise in the organization.

Hierarchical position (Variable 26) is significantly related to several variables: disclosure to and from target groups (V17, $r = -0.500$, $p<0.01$; V21, $r = -0.526$, $p<0.01$), age (V23, $r = -0.409$, $p<0.01$), education (V24, $r = -0.366$, $p<0.01$), tenure or years at the company (V25, $r = -0.425$, $p<0.01$), openness to experience (V27, $r = 0.315$, $p<0.01$), ego strength (V28, $r = -0.330$, $p<0.01$), and defensivensss (V29, $r = -0.298$, $p<0.05$). Thus, in this study, higher organizational status (low hierarchical indices) tended to be held by individuals who shared more information with interacting work groups, who were older and had had more years of formal education, who had been at the company longer, were less open to various kinds of experience--especially those related to "regression in service of the ego," and who scored higher on ego-strength and defensiveness. The relation between organizational position and defensiveness may reflect the generally hostile and competitive nature of many organizational envirnoments--both external and internal. Given a hostile climate, some defensiveness may be necessary for "survival."

In Fitzgerald's development of his Experience Inquiry scale (1966a: 36-39), he found no significant relation between his measure of openness to experience and ego strength ($r = 0.02$, $n = 143$). In this dissertation study, openness to experience as measured by the Experience Inquiry (Variable 27) was also not significantly related to ego strength. Openness to experience was significantly correlated with disclosure to and from one's "best friend" (V15, $r = 0.252$, $p<0.05$; V19, $r = 0.268$, $p<0.05$), age (V23, $r = -0.533$, $p<0.01$), company tenure

(V25, r = -0.564, p<0.01), and hierarchical position (V26, r = 0.316, p<0.01). It would appear that as one becomes older and more established, he becomes less open to stimulation.

Education (Variable 24) shows significant relationships with Q12 target group time (V24, r = 0.440, p<0.05) openness to experience (V27, r = -0.258, p<0.05), hierarchical position (V26, r = -0.366, p<0.01), age (V23, r = 0.384, p<0.05), and trust of people-in-general (V03, r = -0.251, p<0.05). It would appear that one of the by-products of formal education has been skepticism and mistrust. It is also possible that mistrusting individuals have tended to remain in school for longer periods of time. (These observations on the interaction between trust and education are phrased in the past tense, reflecting an optimism concerning potential reform of education systems.)

Moving from individual measures to more work-related variables, the variables from Q12, work relationships, show some significant correlations with variables of the study. Q12 target group time (Variable 33) is significantly and positively correlated with education (V24, r = 0.440, p<0.05), tenure (V25, r = 0.393, p<0.05), and the number of target groups rated as independent to the focal group (V35, r = 0.401, p<0.05). The interaction between less time importance and more independent ratings is quite understandable. The relations involving age and tenure are probably influenced by some common third factor, probably hierarchical position. In fact, hierarchical position (V26) does tend to show a significant relation with V33 (r = -0.345, p<0.10).

Summarizing, in this exploratory analysis of the major variables of the study, several variables proved salient: time to complete the questionnaire, ego strength, openness to experience, age, education, and hierarchical position. Besides providing a background for the central hypotheses of the study, these additional findings may also contribute toward a better understanding of organizational behavior.

CHAPTER FIVE: Conclusions and Implications

5.01 Chapter introduction

This dissertation reports some of the results of a multi-goaled project. These goals included a contribution toward a system of human resources accounting, the test of explicit a priori hypotheses, general exploration of organizational and individual correlates of trust, improved understanding of the theory and practice of organizational development, and the completion of formal requirements for a graduate degree. It may be expected that a project with several goals would result in several sets of conclusions; such was the case with this project. Conclusions and implications of this project will be discussed with respect to three areas: research, organizational development, and organizational management and membership. Finally, conclusions for the author himself are presented.

5.02 Conclusions for research on organizational behavior

The method and results of this study yield both macro- and micro-level implications for research on organizational behavior. At the macro-level are questions of researcher involvement with the "object" of his study (cf. Argyris, 1968c; Caro, 1969; Friedlander, 1968). If for no other reason than to maintain the involvement of the participants, the researcher should pay attention to his relations with the participants of the study. This becomes quite critical for longitudinal studies.

In addition to increasing the likelihood that the study may continue at the field site, attention to the process of research adds significantly to the data which the researcher can bring to bear to help interpret his results. In addition to general background events outside and within the organization, the immediate reaction of the participants to the research, and of the researcher to the participants may aid the researcher in designing and implementing his research, as well as contributing to more valid conclusions.

In addition to the usefulness of multiple methods of measurement and observation, the inclusion of multiple traits also aids the researcher (Campbell

& Fiske, 1959). This author found that the measurement of various levels of variables significantly helps understanding the data. Although focused on a rather narrow slice of organizational life--trust and openness--several levels of variables were readily included in the analysis. Personality traits (Q02), attitudes (Q05, Q07, Q09) and other judgments (Q06, Q09), an overt self-report of behavior (Q08), and a somewhat covert measure of behavior (scale completion time) were all used in trying to understand the meaning of trust in the organization. It is strongly suggested that researchers include relevant and related measures on at least another level than that of their primary focus. Two additional levels, one more "personality" oriented, the other more "behavioral" would prove a strong "validity sandwich."

Many studies of organizational behavior seems to avoid the problem of effectiveness. While determining effectiveness is not easy, it is important. If at all feasible, it is suggested that researchers include some effectiveness measure as one "level" of variable. Experience in this study with a relatively straightforward rating scale for effectiveness (Q15) indicates that significant organizational dynamics may not emerge in the research without explicit concern for effectiveness. Along with some dynamics, several questions also emerged with the effectiveness ratings from this study (see section 4.03). Further research is necessary to begin answering some of these questions.

The use of previously developed scales of known quality can contribute to greater replication in studies and quicker convergence on the substantive, rather than divergence on the methodological, issues of research (cf. Kegan, 1970a). Although the researcher may be interested in variables for which instruments have not previously been developed, it is likely that an instrument for a relevant variable can be found. The inclusion of such a relatively "standardized" scale can aid making more valid generalizations.

Thus far, these suggestions for research have called for more "rigorous" attention to the methodological aspects of organizational studies. However, included in this concept of "rigor" is attention to the process of research, as well as to quantitative problems. Additional rigor does not come "free." Paralleling the expected increase in research effectiveness is the need for increased resources.

The strategy of "traditional" academic research on organizations may be questioned (cf. Price, 1968; Starbuck, 1968; Triandis, 1966). Doctoral

dissertations are generally extremely individualistic enterprises. Established organizational theorists also tend to have individualistic research programs. (This is not to say that many graduate students may not be associated with a project, but joint efforts of several researchers of equal status are not frequent. Cf. note 17, section 2.09 and J. Taylor, 1970) There are definite costs involved with cooperative research strategies--including manpower and coordination problems. However, there may be some research projects for which cooperative strategies may be better than noncooperative ones. Doubtless, the organizational and reward structure of contemporary universities has been an influence on the current strategy of organizational research. However, as Starbuck (1968: 157) comments:

> Organization theorists, above all research groups, should be concerned with the organizational structure of their discipline, with rational approaches to centralization and decentralization, and with designing interaction systems which facilitate joint rewards. We should ask whether control by planning would be more effective than control by feedback. We should identify opportunities for coalition formation, and form coalitions when the opportunities are worth exploiting. We should observe and evaluate our own organization with the same objectivity we ask of others.

While cooperation with other academic researchers may prove beneficial for some research programs, cooperation with organizational practitioners may prove critical. Even discounting problems of entry, of continuing support for the research program, and of the reactive effects of the researcher and his studies, there are many research situations which could prove valuable for the organizational researcher (cf. Ferguson, 1964). If Campbell's suggestions for administration experimentation (1967) in the "experimenting society" (1969) are to be implemented, cooperation must be fostered from both sides.

One means of fostering such cooperation is to include the study participants in some phases of the research design. There may be some variables that are of special interest to them, variables that could readily be included in the study. They may have preferred methods for data collection. They may be able to provide experienced insights into various threats to validity in the research design; they may suggest improvements. As "subjects," the members of organizations are one form of resource to the researcher. As co-learners, they may be an additional resource.

In summary of methodological issues, a comprehensive, rigorous, humanistic, and participative research orientation is suggested as appropriate for many organizational situations. There may be some research questions and situations which are better addressed through alternative approaches, but the organizational researcher is asked to question the process or his research and his goals. Through this inquiry and confrontation with the constraints of reality, increased valid knowledge concerning organizational behavior may more readily be obtained.

In addition to methodological issues, several substantive areas for future research are indicated. It would appear that the participants in this study were working in organizational climates lacking value consensus (cf. Barth, 1970; Douds, 1970; Price, 1968a: 44, 104ff, 167). This was most strongly manifest in what may be termed a "self reliance--obedience" value disparity. Additional attention to this value and to probable underlying personality variables (cf. Rotter's I-E scale, 1966) may prove necessary in attempts to create self-renewing organizations.

The self-actualization scores for all of the groups in this project were low compared with Bonjean's 1966 study. While individual scores ranged from 11 to 100, group averages--which ranged from 68 to 88--tended to be below Bonjean's means--84 for workers, 90 for managers. Associated with these low self-actualization scores were intergroup work relationships (Q12 "kind" scores) in which the focal groups tended to be dependent on their target groups. The author believes that the generally low self-actualization scores may be partially caused by dependent work relationships. Further, both conditions may tend to be generally associated with research and development's status in the organization. Additional research would be necessary to test the proposition that work relations of research and development groups tend to have the R&D groups more dependent.

Finally, it is suggested that future research on organizational trust concentrate on the parameters in propositions, rather than on the variables of trust and effectiveness. Sufficient research has accumulated (see note 2, section 2.10) to indicate that open, trusting, reality-testing relationships can promote individual and organizational effectiveness and that some planned change programs do promote such trusting climates. The future challenges seem to be finding the entry and leverage points for differing individuals, groups, and intergroup relations and finding means for reinforcing both trust and reality-testing--that is, for reinforcing self-renewal.

5.03 Conclusions for organizational development

The effectiveness ratings (Q15), questionnaire data, and field observations obtained during this study raised some questions for organizational development. Additional queries arose from the author's interaction with OD agents from many different organizations. (Much of this interaction was through NTL's OD Network and through the initial survey of the OD field, see section 3.03.) These questions center on the issue of organizational influence (cf. Cartwright, 1965).

Early research of change programs focused on a work group's resistance to change imposed by management (e.g., Coch & French, 1948; Lawrence, 1954). While such resistance may still be an important factor in an OD program, a reverse form is likely to be of critical importance to the eventual success of the program. Many OD programs involve only some of the work groups of the organization--those groups which see OD as a useful tool. Paralleling this "checkerboard" involvement of work groups with OD is likely to be a similar pattern among management. It is not uncommon for some members of management to support OD approaches, while other members are wary of OD. Given such organizational conditions--conditions likely to be found in all but the most deeply committed and involved organizations--an active OD program with a work group may encounter resistance, not by the focal work group itself, but by other interacting work groups and by management.

The values underlying organizational development differ from traditional "bureaucratic" values. One critical traditional value is obedience; its OD counterpart would include collaboration and responsible autonomy. Even in a change program which managers explicitly approve, they are liable to be ambivalent about new mechanisms of control (cf. Slesinger & Harburg, 1968). Some of this value conflict appeared to be manifest in the effectiveness ratings of the groups of the study (see section 4.04). Writing of R&D management's reaction to research findings, Floyd Mann (1968: 45) comments:

> A major problem is the difference between what is known intellectually and what isknown behaviorally and is regularly used in the management of their laboratories.

There is a problem when management and other interacting work groups intellectually support OD values but behaviorally violate OD norms. The difficulty is compounded when even intellectual support is lacking. This latter condition may aptly be termed a "hostile" environment for OD.

Given an overall nonsupporting or hostile environment, some OD strategies appear to take a rather passive approach. The assumption underlying this approach may include beliefs that trust and openness are "better" values and hence will eventually "win" or that the work groups engaged in an OD program will be a persuasive example to the rest of the organization. While such beliefs may at times be warrented, in general such assumptions are apt to be unsupported (cf. the "competitive" use of information discussed by Blodgett, 1968; Carr, 1968; B. Henderson, 1967; Wilmotte, 1970).

The author believes that a more actively aggressive approach may yield a more self-renewing organization more quickly and more enduringly. The more flexible and innovative the members of an OD program can be in designing approachs to difficulties with other groups and with managers, the more likely it is that the program may evolve into the "systemic consistency" which tends to support durable organizational change (cf. Seashore & Bowers, 1970). In addition to such now standard organizational development tools as the T-group or the confrontation meeting, other techniques--such as community organization and development (Alinsky, 1946; Grace, 1970; Spiegel, 1968, 1969) or labor relations models (Whyte, 1967)--may be found useful (cf. Leavitt, 1965). The challenge for the OD agent and the groups working with him is to find ways of humanistically creating and utilizing organizational power.

5.04 Conclusions for organizational management and membership

When it is seen as a viable alternative, many people seem to prefer open climates based on trust: trust of self and trust of "the other" (see note 2, section 2.10). For organizational members who have experienced such (cf. Argyris, 1969, on the relative infrequency of such open climates), the question is likely not to be is such a climate preferred, but is it viable. That is, will others continue to support such an open, confronting climate.

As discussed in section 5.03, it is likely that some significant "others" will tend not to support such an open climate. A self-renewing organization is liable not to be achieved if organizational members "wait" until they are "guaranteed" or "given" a supporting environment. An OD agent can help members increase their problem-solving, collaborative, and group process skills; their awareness of themselves and others; their creative risk-taking; and their sense of responsible autonomy and interdependence. He can facilitate the growth of such an open climate within a work group, within interacting work groups. But for effective transfer of learning to occur the individual organizational member must be committed to behaving congruently with his own values. Such behavior would include testing assumed hostile or nonsupportive relationships, inquiring into possible means of resolution, and--if appropriate--implementing changes in values, expectations, and behaviors.

There are grounds for believing that the open, confronting, self-reliant norms supported by organizational development may be negatively valued by many organizations (see sections 4.04, 5.03; cf. Emerson, 1841). If such is the case with his own organization, an individual may wish to modify his tactics. The strength of resistance as well as the individual's own commitment to his values, his time perspective, his "investment" in the organization, and his perceived alternatives should influence his overall strategy and behavior. Ultimately, it is up to the individual to decide in what ways he can contribute to creating the kind of environment he wishes to live and work in. The values of organizational development would suggest that a spirit of inquiry, an individual authenticity, and the ability to act and decide responsibly will facilitate more valid perceptions of reality and more effective behaviors.

5.05 Conclusions for the author

This research project began from a central curiosity about the role of trust in organizational behavior. From this curiosity several more formal goals were developed and woven into the fabric of the study. Comparing the initial design with the data and learnings obtained during this project, the author draws several conclusions.

The initial research design was a rather complicated attempt to reduce many plausible methodological rival hypotheses present in early studies of the effects of sensitivity training (see section 3.02). Donald T. Campbell was a significant influence toward this line of thinking, both in terms of design rigor (Campbell & Stanley, 1963) and administrative experimentation (Campbell, 1967, 1969). If the participants in a study were committed to the philosophy of administrative experimentation, the problems of rigorous design would be more easily solved. However, in the judgment of the author, the principal obstacle to this kind of research appears to be the participants' lack of commitment to administrative experimentation. The author suggests that unless the measurements taken for such administrative research are also used in the normal organizational control systems, it is unlikely that the participants will maintain a high involvement in the study. An issue for the researcher, then, is to try to facilitate the "institutionalization" of the measures he feels will be significant.

The three organizations which participated in this study are a select group. Of the fourteen high technology companies invited to participate, only these three elected to do so. While many factors influenced these decisions, it is likely that the general climate within research and development laboratories played a part. There is a common belief within the OD field that R&D is an especially resistive climate for organizational development. The author partially concurs. While individual and structural factors within the R&D laboratory may contribute to its resistance, organizational factors external to the lab but within the company may also play a significant role and should not be ignored (cf. section 2.09). The nature of the task of research and development is such that some organizational development approaches may be expected to make significant contributions to individual, laboratory, and company effectiveness.

The initial focus of this research project was on trust, specifically trust in the nonharmfulness of "the other." During the project other aspects of trust also became of concern. In addition to the danger of over "protection," there is the danger of over "paternalism": the danger of not trusting another to be a capable person. This latter form of mistrust can be as harmful to individual and organizational effectiveness as the former. To utilize his potential, an individual must have a chance to do so; to learn, he must have experience. This conflict may be resolved through open dealing with the issue between the involved individuals--probably boss and subordinate. Through joint exploration of strengths and learning needs, mutually satisfying expectations and behaviors may be developed.

While the initial focus was on trust of the other, the concluding focus of the study has become trust of self (cf. Shostrom, 1968: 52ff). An environment fostering and supporting trust of the other may contribute to organizational and individual effectiveness. However, in creating such an *organizational climate, individual action* can be of critical importance. The individual who trusts himself is the one who can more readily test changing reality, confront his perceptions and colleagues, and adapt and act as appropriate.

Trust is not the only element of an organiz ation's climate (cf. Barth, 1970), and organizational climate is not the only variable influencing organizational behavior. Other variables may be more relevant for addressing specific questions. However, the author believes that the investigation of trust--both trust of self and trust of the other--taps a significant slice of the whole spectrum of variables relevant to individual and organizational behavior. As a variable of interest itself, as an indicator of the process of organizational interaction, and as a diagnostic procedure identifying other important areas of inquiry, a consideration of trust may aid the organizational member and researcher.

A final issue concerns the "optimism" latent throughout this dissertation. Two assumptions underlying this project are a) that individual and organizational relations are capable of change and b) that some changes are more feasible than others. Much of chapter two, for example, is an exposition of why change is possible and of how trust and openness may be effective. Constraints are noted but not overly emphasized. This was due, in part, to the author's assumption that the prevailing beliefs of many organizational members focused on the inertial qualities of constraints to change. For effective individual and organizational action, the trusting individual should be open to testing his assumptions and to recognizing both potentials and constraints.

Words II

"Look here," Furii said. "I never promised you a rose garden. I never promised you perfect justice . . . and I never promised you peace or happiness. My help is so that you can be free to fight for all of these things. The only reality I offer is challenge, and being well is being free to accept it or not at whatever level you are capable. I never promise lies, and the rose-garden world of perfection is a lie . . . and a bore, too!"

--Hannah Green, I Never Promised You A Rose Garden.

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NORTHWESTERN UNIVERSITY
EVANSTON, ILLINOIS 60201

DEPARTMENT OF INDUSTRIAL ENGINEERING
AND MANAGEMENT SCIENCES

THE TECHNOLOGICAL INSTITUTE

March 25, 1968

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Dear

One of our graduate students, Dan Kegan, is investigating the feasibility of studying the effects of in-house sensitivity training programs for his dissertation, which will be focused on the effects of trust and openness on organizational behavior.

Could you please tell me:

1) What firms you know of that have had such programs.
2) Who conducted the programs--an internal group or an outside group (name of outside group, please).

Firm	Who conducted	Inside	Outside (name)

3) Are there any firms you know of that are likely to start such a program in the near future. (If yes, firm name and city.)

We will appreciate any of the above information that you can supply.

Sincerely,

Albert H. Rubenstein
Professor

NORTHWESTERN UNIVERSITY
EVANSTON, ILLINOIS 60201

DEPARTMENT OF INDUSTRIAL ENGINEERING
AND MANAGEMENT SCIENCES

THE TECHNOLOGICAL INSTITUTE

16 December 1968

Dear

One of our graduate students, Dan Kegan, is investigating the feasibility of studying the effects of in-house sensitivity training and organizational development programs for his dissertation, which will be focused on the effects of trust and openness on organizational behavior. His study will concentrate on research and development and other technical departments of selected indistrial organizations. However, at this stage of his research, learning of the experience of other departments and of management, as well as that of the R&D department, would be quite beneficial in his development of the underlying theory and the study design.

From our initial investigations of industrial sensitivity training, it appears that your organization has participated in such programs. We would appreciate it if Dan could visit you for an exploratory discussion of your firm's experience with these programs.

If this is agreeable with you, Dan will call you to see when he might visit you, hopefully some time within the next few months.

Thanking you for your cooperation,

Sincerely,

Albert H. Rubenstein
Professor

Exploratory Interview Schedule

1. Introduction
   Northwestern University
   Department of Industrial Engineering & Management Sciences
   Organization Theory Group
   Program of Research on the Management of Research and Development

   Confidentiality

   Dissertation design, and possible post-doctoral study
   Organizational and individual effects of trust and openness
   Long-term effects of sensitivity training and organizational development
   Establishing procedures to measure such effects

2. What sensitivity training and other organizational development programs has the company had, does it now have?

3. About how many people have attended external labs, internal labs, overlap?

4. What hierarchical levels have participated?
   Only top management, other divisions, R&D.

5. Have any more or less formal methods of evaluation--such as questionnaires--been used for the sensitivity training program?

6. What is the interviewee's role in the organization?
   His role description, length of time in present position.
   His main information and decision-making network.

7. Will interviewee and company participate in the study?
   If yes, develop procedures.

8. Any questions, comments.

9. Request permission to call back, for additional information, etc., as necessary.

Confidentiality of the Data

Insofar as this is a research project, our confidentiality agreements hold--no individual will be personally identified with his data nor will the organization be identified in any report. In order to make data analyses over an extended period of time, we at Northwestern need to have an unique number to identify each individual in the study. Generally, we have found it easiest for the participant to write his name on a cover sheet of the research scales. After he has completed the scales and sent them to Northwestern, we replace his actual name by a code number. This method means that the participants are not encumbered with remembering a code number. The list relating actual names to code numbers is kept in our confidential files at Northwestern.

However, an organization may decide to use some of the data of this study as part of its own action research program. In this case, someone in the organization (for example, an organizational development agent) will want to see the data. This is possible under certain conditions. Any modification of the basic confidentiality agreement (above) must be made explicit to all participants before they complete any scales. Depending on the specific arrangements involved, the groups involved may themselves decide whether they wish the OD agent to see their data, or this may be a condition previously determined for the group.

If data is to be fed back to anyone in the organization, it may be fed back as group aggregrate data (means and ranges) or with individuals' responses identified. Again, however this data may be used, such conditions must be made explicit to all participants before they complete the scales.

It is suggested that such data not be used in connection with any organizational evaluation system of individuals. Also, it is suggested that the organization destroy any individual data it may have which is more than thirteen months old. Group aggregrate data, however, could be saved.

Selection of Focal and Target Groups

This study focuses on the interaction of natural work groups. A focal group is a group which will be participating in this study. Target groups are other groups within the organization with which the focal group may have some significant amount or quality of interaction. A target group does not necessarily participate in this study.

Several of the research scales ask the members of the focal group to discuss some of their relations with these other, target groups. A rated group is any group the focal group rates on a scale: a rated group may be the focal group itself, a target group, or another group, such as people-in-general.

Several key questions arise in establishing this study in an organization.

1. How many focal groups should be included?

This will depend on the number of individuals that the organization feels can participate in the study. A minimum of 3 focal groups and 30 to 50 individuals are desired so that adequate statistical controls and procedures may be used. The maximum number of focal groups or individual participants is limited only by the resources of the study team: it is likely that procedures can be worked out to utilize additional participants over fifty.

2. How should the specific focal groups be chosen?

This will be partly influenced by the number of focal groups in the study. The first focal group should be one in which it is expected that the group climate (trust and openness) is likely to change (eigher increasing or decreasing) within the next months, or a group which has been having problems of relationship with other groups. This expectation may be based on personnel changes, explicit organizational development activities, or anything else.

The second focal group should also be one in which there is some probability of change. The third focal group should be one in which it is likely that there will be little or no change. This third group will be serving as a potential control. Of course, it cannot be guarenteed that any expected future change or lack of change will occur. The data of this study will be useful whether or not these expectations are supported. However, if the expectations are fulfilled, the data should be more varied and thus more "interesting." Additional focal groups should be those for which some change is expected sometime during the period of this study. If six or more focal groups are included, two control (no change expected) groups may be included.

It would greatly add to the richness of the data if each focal group is also a target group for at least one other focal group.

3. How many target groups should be chosen for each focal group? How are they chosen?

This will depend on the amount of time that may be devoted to this study by the participants. The average time per person to fill out the complete set of scales if 90 minutes for 6 target groups. Each additional (or fewer) target group adds (or subtracts) about 5 minutes.

If time is not a tight constraint, the focal group (or one familiar with their work) should identify those target groups with which it has some interdependence. There should be at least one group higher in the organizational hierarchy, at least one group below, and some peer or liaison groups. In addition, one group (to serve as a control) with which the focal group has little interaction may be included. Remember that it is helpful if each focal group is rated as a target group by some other focal group.

If time is a tight constraint, the number of target groups may be reduced. A minimum of target groups would be: company management, own subordinates, and one peer or liaison group. If additional important liaison or peer groups can be identified, it would be helpful if they were also included.

4. Can an individual be a target group?

Yes, although it is not advisable unless there are strong reasons for this. With an individual as a target, the research project is apt to be interpreted as an evaluation of individuals. This it is not. It is primarily a study of work group environment and its effects on the individual and the organization. However, if an individual has a significant impact on a group, he may be included. In such a case it would be preferable to use his role title rather than his name.

5. What kinds of groups should be chosen?

This study focuses on research and development and other technical groups. Groups for which the creation, transformation, and transmission of information is a central part of their work are quite appropriate.

Evaluation of Decisions

To use the Decision Evaluation scale, a set of appropriate decisions must be identified. This set should representatively sample the kinds of decisions that concern the focal group. For example, if project selection is a major concern of the group, a sampling of the decisions made on the project portfolio could be the set under study. Representative (accepted, modified, and rejected) and controversial decisions should be included. The number of decisions to be evaluated should be large enough to be representative, but not so large that the evaluation becomes an onerous process. It is suggested that approximately 10 key decisions per year be included.

The Decision Evaluation form may be completed at any appropriate time--it need not be tied to the rest of the scales of this study. It may be completed whenever appropriate--quarterly or whenever a specific evaluation is desired.

The form is meant to form a time-series evaluation of past events. It is suggested that decisions be evaluated for approximately 5 years after the decision event. This should provide time for most of the consequences of the decision to stabilize. Of course, any specific decision evaluation may be made for a longer or shorter period, as special conditions warrent.

Another possibility is to provide blank Decision Evaluation forms--forms without a specific decision event listed. These forms would be made readily available to all participants, who would complete one whenever they noticed a new consequence of a past decision. In this case, the participants could also create their own sampling procedure--they would select each decision on the basis of its relevance at the time of evaluation. This method may be supplemented by an annual review of a set of decisions. Alternately, each participant could have a quota of evaluations per quarter; however, he would be free to choose what past decisions he wished to evaluate.

PROGRAM OF RESEARCH ON THE MANAGEMENT
OF RESEARCH AND DEVELOPMENT
Department of Industrial Engineering and Management Sciences
The Technological Institute
Northwestern University
Evanston, Illinois 60201

Goals of a Study of Trust, Openness, and Organizational Development

Daniel L. Kegan

May 1969

The effects of trust and openness on individual and organizational behavior are the focus of a doctoral dissertation by Dan Kegan, under the supervision of Professor A. H. Rubenstein. This doctoral study is part of a larger design of research on the long-term effects of organizational development programs.

This area of research was chosen for several reasons:

1. Trust and openness are phenomena of interest and importance.

2. Research on the long-term effects of organizational development programs has been sparce and inconclusive. The methodological procedures developed for this study should help resolve this problem.

3. This area of research is relevant for management. Management now has available sophisticated accounting procedures to help its decision making on financial matters. However, accounting procedures for an organization's "human resources" are in an early state of development. An outgrowth of this research study is a contribution toward a system of human resources accounting.

4. In its participation in this study, an organization would establish a framework for its human resources data. In time, this framework can be adapted to reflect additional concerns of management.

5. Although our basic objective in this research is to increase general knowledge of the phenomena, the data generated in this study may also be used as part of an action research program by the organization being studied. The organization may use some of the data generated in the study to help plan its own growth and development.

Participant _____ Date Completed _____

Instructions

This booklet contains several sets of questions. The answers you give to these questions will be held strictly confidential, that is, your name will not be identified with any of the answers you give. This is not a test: there are no right or wrong answers. We are just interested in what you personally believe.

In order to make data analyses over a period of time, we need to have a unique number to identify each participant's data. We have found it easiest for you to write your name on this instruction sheet. After you have completed the scales and have sent them to Northwestern, we will replace your actual name by a code number. This method means that you are not encumbered with remembering a code number. The list relating actual names to code numbers is kept in our confidential files at Northwestern.

Some of the sets of questions are repeated with reference to different groups--groups with which you interact during the course of your work. Try to answer the questions referring to groups with a single answer of your feeling toward the group as a whole. Although some of these questions may appear similar, please answer each as it applies to the specific group indicated.

After you have finished the booklet, please check that you have completed all the items on each page. Note that some of the early scales are printed on both sides of the page.

To help give me feedback about these scales, could you please, if convenient, note the number of minutes that you took to answer each section:

Myself	____ minutes
Job Aspects	____
Information Network	____
Beliefs	____
Disclosure	____
Decision Evaluation	____

Also, please indicate whether you completed all the scales at one sitting or at several times by bracketing the scales you took at the same time.

After you have completed all the scales, mail them back to me at Northwestern. If you have any questions, phone me at Northwestern ( ).

Thank you for your participation in this study.

Myself

These questions are concerned with you personally. For these questions, please read each statement and decide whether or not it is true as applied to you. If it is true, or mostly true, circle T. If it is not usually true, or not at all true, as applied to you, circle F. There are no right or wrong answers. The statements are about matters on which people often differ. The best answer is just your own opinion of yourself as you are now. Please answer TRUE or FALSE for every statement, even if you have to guess at some. (Note that statements are printed on both sides of the page.)

T F 1. I am regarded by others as a person with a strong sense of humor.
T F 2. Sometimes I wander off into my own thoughts while doing a routine task so that I actually forget that I am doing the task, and then find, a few minutes later, that I have completed it without even being aware of what I was doing.
T F 3. At times I have carried on real conversations with another person while I was asleep (eg, with someone who walked into my room).
T F 4. Sometimes I have had the impression that the walls or the ceiling were moving and changing size or state, even though I knew that this was impossible.
T F 5. When I am working, I find it distracting if the TV is on or if someone is talking in the room.
T F 6. At times I have focused on something so hard that I went into a kind of benumbed state of consciousness, or at other times into a state of extraordinary calm and serenity.
T F 7. I can look at an object--a leaf, a stone, a flower--for a long time, continuing to discover different things about it.
T F 8. I prefer Martin Luther King to Jonathan Winters.
T F 9. I avoid sports and activities that are thrilling but in which there is some risk of physical injury.
T F 10. I feel uncomfortable when I cannot make my ideas consistent.
T F 11. I avoid "putting people on" or doing things just to see the reaction of others.
T F 12. People are intolerable who take "sacred" things in a light and humorous way.
T F 13. One should be on guard against obscuring rational thought by beliefs in mystical experiences.
T F 14. Sometimes I imagine what it would be like if the world were different, eg, if there were no laws, if we could read each other's minds, etc.
T F 15. I usually prefer to do things in tried ways rather than new and different ways.
T F 16. It is possible that we had a previous existence of which we have no memory.
T F 17. I would like to get beyond the world of logic and reason and experience something new and different.
T F 18. At times I have actively stared at something familiar and had it become very strange before my eyes.
T F 19. While lying in bed or reclining in a chair I sometimes find myself perceiving faces, objects, etc. in the shadows of the light or the design of the ceiling, etc
T F 20. I think that things should be predictable and certain.
T F 21. At times I see unusual relations between things.

(Continue on reverse side.)

T F 22. It is possible that our sense organs (ie. eyes, ears, etc.) do not bring us our most important information.
T F 23. Poetry has little effect on me.
T F 24. I prefer the standards of the scientist to those of the artist.

T F 25. I like to indulge in emotions and sensations with the feeling of just "letting go."
T F 26. I would enjoy a contest in a carnival in which I had to break a pile of dishes.
T F 27. I have never had a strange or weird experience.

T F 28. I have had experiences which inspired me to write a poem or a story, or make up a humorous tale, or paint a picture.
T F 29. I have had the experience of being caught up by music or dancing, becoming enraptured by it, and having it live and express itself through me so that I seemed to cease to be.
T F 30. I am quick to see "double meanings" in things people are saying or in what I am reading.

T F 31. I think that miracles are possible.
T F 32. I think that our most intense experiences can be communicated in words to others.
T F 33. If one concentrates hard enough it is possible to influence the thoughts and behavior of other people.

T F 34. Some people are capable of extrasensory perception.
T F 35. There have been times when I have been completely immersed in nature or in art and had a feeling of awe sweep over me so that I felt as if my whole state of consciousness was somehow temporarily altered.
T F 36. I have experienced moments of inspiration and creativity, when artistic expression, ideas, or the solutions to problems I had struggled with came to me with a special intensity and clarity.

T F 37. I prefer people who are predictable and dependable to those who are impulsive and changeable.
T F 38. I usually try to understand my dreams.
T F 39. It is not possible literally to read another person's mind.

T F 40. I think that unidentified flying objects from outer space have in fact been sighted.
T F 41. I would like to try parachute jumping.
T F 42. At amusement parks I usually avoid roller-coasters, ferris wheels and similar "thrill rides."

T F 43. I think that many people in our culture have had visions at some time or another.
T F 44. Solutions to problems or ideas for new projects come to me at times "out of the blue."
T F 45. Most things people laugh at are not really funny.

T F 46. I enjoy "wild" parties.
T F 47. I am often bored when left alone.
T F 48. I have been so strongly in love with someone that I somehow felt that my own self was fading and I was at one with the beloved person.

T F 49. I have had the experience of doing some task in the middle of the night (eg, jotting down a note, answering a phone call) with no memory the next morning of having done so.
T F 50. It is possible for the mind to leave the body and experience things at great distances, even in the past and in the future.
T F 51. When solving a problem I allow myself to consider all possibilities even though some are unrealistic or absurd.

T F 52. It is sometimes right to hit someone who makes you angry.
T F 53. I would prefer vacationing at a fashionable resort to sailing around the world, paddling down the Mississippi, or some similar activity.
T F 54. Eventually everything will be explained by the laws of science.

T F 55. It is often better to act upon one's feelings than upon a logically reasoned plan.
T F 56. I find myself uncomfortable in the presence of unconventional or "peculiar" people.
T F 57. At times the solution to a problem has suddenly occured to me while I was engaged in an activity unrelated to that problem.

T F 58. It is possible that there are civilizations on other planets which are far more advanced than ours.
T F 59. Whenever possible I avoid taking risks and experiencing things that are different from the usual.
T F 60. I tend to see humor in awkard situations in which I sometimes find myself.

T F 61. I sometimes find myself seeing serious matters or important people in a comical light.
T F 62. At times I have found a sort of fulfillment of myself in creating something, as in crafts, science, writing, art or music.
T F 63. There are things and events which cannot ultimately be explained logically.

T F 64. It would be fun to throw darts at a picture of someone I dislike.
T F 65. If one concentrates hard enough it is possible to influence objects.
T F 66. I have walked in my sleep at times.

T F 67. It is immature and childish for adult persons to display emotion and behave impulsively.
T F 68. It is possible that the moon influences human behavior.

T F 1. I have a good appetite.
T F 2. I have diarrhea once a month or more.
T F 3. At times I have fits of laughing and crying that I cannot control.

T F 4. At times I feel like swearing.
T F 5. I find it hard to keep my mind on a task or job.
T F 6. I have had very peculiar and strange experiences.

T F 7. I have a cough most of the time.
T F 8. I seldom worry about my health.
T F 9. At times I feel like smashing things.

T F 10. My sleep is fitful and disturbed.
T F 11. When I am with people, I am bothered by hearing very queer things.
T F 12. I am in just as good physical health as most of my friends.

T F 13. Everything is turning out just like the prophets of the Bible said it would.
T F 14. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep."
T F 15. I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.

T F 16. I am easily downed in an argument.
T F 17. It takes a lot of argument to convince most people of the truth.
T F 18. I do many things which I regret afterwards (I regret things more or more often than others seem to).

(Continue on reverse side.)

T F 19. I go to church almost every week.
T F 20. I have very few quarrels with members of my family.
T F 21. I have met problems so full of possibilities that I have been unable to make up my mind about them.

T F 22. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
T F 23. Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it.
T F 24. Often I can't understand why I have been so cross and grouchy.

T F 25. I like collecting flowers or growing house plants.
T F 26. At times my thoughts have raced ahead faster than I could speak them.
T F 27. Criticism or scolding hurts me terribly.

T F 28. I like to cook.
T F 29. I certainly feel useless at times.
T F 30. It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.

T F 31. During the past few years I have been well most of the time.
T F 32. I have never felt better in my life than I do now.
T F 33. What others think of me does not bother me.

T F 34. It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of things.
T F 35. I have never had a fainting spell.
T F 36. I find it hard to make talk when I meet new people.

T F 37. When I get bored, I like to stir up some excitement.
T F 38. I am against giving money to beggars.
T F 39. My hands have not become clumsy or awkard.

T F 40. I feel weak all over much of the time.
T F 41. I have had no difficulty in keeping my balance in walking.
T F 42. I like to flirt.

T F 43. I believe my sins are unpardonable.
T F 44. I frequently find myself worrying about something.
T F 45. I like science.

T F 46. I like to talk about sex.
T F 47. I get mad easily and then get over it soon.
T F 48. I brood a great deal.

T F 49. I dream frequently about things that are best kept to myself.
T F 50. My way of doing things is apt to be misunderstood by others.
T F 51. I have had blank spells in which my activities were interrupted and I did not know what was going on around me.

T F 52. I can be friendly with people who do things which I consider wrong.
T F 53. If I were an artist, I would like to draw flowers.
T F 54. When in a group of people I have trouble thinking of the right things to talk about.

T F 55. When I leave home, I do not worry about whether the door is locked and the windows closed.
T F 56. At times I am all full of energy.
T F 57. I have periods in which I feel unusually cheerful without any special reason.

T F 58. I think nearly anyone would tell a lie to keep out of trouble.
T F 59. I worry over money and business.
T F 60. At times I hear so well it bothers me.

T F 61. Often I cross the street in order not to meet someone I see.
T F 62. I have strange and peculiar thoughts.
T F 63. Sometimes I enjoy hurting persons I love.

T F 64. Sometimes some unimportant thought will run through my mind and bother me for days.
T F 65. I am not afraid of fire.
T F 66. At periods my mind seems to work more slowly than usual.

T F 67. I do not like to see women smoke.
T F 68. When someone says silly or ignorant things about something I know, I try to set him right.
T F 69. People often disappoint me.

T F 70. I feel unable to tell anyone about myself.
T F 71. My plans have frequently seemed so full of difficulties that I have had to give them up.
T F 72. I have sometimes felt that difficulties were piling up so high that I could not overcome them.

T F 73. I often think, "I wish I were a child again."
T F 74. I have often met people who were supposed to be experts who were no better than I.
T F 75. I would certainly enjoy beating a crook at his own game.

T F 76. I have had some very unusual religious experiences.
T F 77. One or more members of my family is very nervous.
T F 78. I am attracted by members of the opposite sex.

T F 79. The man who had most to do with me when I was a child (such as my father, stepfather, etc.) was very strict with me.
T F 80. I find it hard to set aside a task that I have undertaken, even for a short time.
T F 81. Christ performed miracles such as changing water into wine.

T F 82. I pray several times every week.
T F 83. I feel sympathetic towards people who tend to hang on to their griefs and troubles.
T F 84. I am afraid of finding myself in a closet or small closed place.

T F 85. I like to let people know where I stand on things.
T F 86. Dirt frightens or disgusts me.
T F 87. I think Lincoln was greater than Washington.

T F 88. In my home we always had the ordinary necessities (such as enough food, clothing, etc.).
T F 89. I am made nervous by certain animals.
T F 90. My skin seems to be unusually sensitive to touch.

T F 91. I feel tired a good deal of the time.
T F 92. I never attend a sexy show if I can avoid it.
T F 93. If I were an artist, I would like to draw children.

T F 94. I sometimes feel that I am about to go to pieces.
T F 95. I have often been freightened in the middle of the night.
T F 96. I very much like horseback riding.

Job Aspects

Here is a list of conditions indicating what other people have felt to be the most important aspects of an ideal job. We would like to find out which of these are important for you. If you were looking for work, within the field for which you are qualified, which of these items would you consider most important? You may name more than one item if you wish. Also, if there is anything not on this list that is just as important as these items, list it under "other" and score it as the listed items. Indicate the items you would consider most important by writing 4 in the I column.

Which items would you rank next in importance? Again, if there is anything not on this list that is just as important as these items, list it under "other" and score it appropriately. For these items ranked next in importance, write 2 in the I column.

Are there any other items that make any difference to you at all? Score these items with 1 in the I column. You do not have to mention those items that make no difference to you.

(After you have completed this side, please complete the reverse side of the page.)

	Item	I	II
1.	Being alone while at work.		
2.	Being with other people while at work.		
3.	Directing other people's activities.		
4.	Having a supervisor who is available and who tells me what I should do.		
5.	Having new and varied tasks from day to day.		
6.	Having similar tasks from day to day.		
7.	The amount of money I make.		
8.	Having a job that is secure.		
9.	Having responsibility and being important to the company.		
10.	Doing my work in my own way.		
11.	The physical surroundings where I work.		
12.	Having the opportunity to do quality work.		
13.	other:		
14.	other:		
15.	other:		

(Continue on reverse side.)

Note the items scored in the I column and please answer the corresponding questions that follow for each (eg. if there is a score in the I column for item 2, answer question 2 below). Do the same for all items with a score in the I column, and enter the scores below in the II column.

Now we would like to find out some things about the work you are actually doing right now. You mentioned that _____ was important to you in your work. Would you say that:

1. (being alone)
   0. you are never alone while at work?
   1. you are rarely alone?
   2. you are alone sometimes, but not enough?
   3. you are alone as long as you want?

2. (being with others)
   0. you are never with other people?
   1. you are rarely with others?
   2. you are with others sometimes but not enough?
   3. you are with others as often as you want?

3. (directing others)
   0. you never direct the activities of others?
   1. you rarely direct the activities of others?
   2. you sometimes direct but not enough?
   3. you direct others as often as you want?

4. (your supervisor)
   0. your supervisor is never available to tell you what you should do?
   1. your supervisor is rarely available?
   2. your supervisor is available sometimes but not often enough?
   3. your supervisor is always available to tell you what you should do?

5. (new and varied tasks)
   0. there is no variety in the tasks you perform?
   1. there is little variety?
   2. there is some variety but not enough?
   3. you have all the variety you want?

6. (similar tasks)
   0. you do no routine work at all?
   1. there is very little routine in your work?
   2. there is some routine but not so much as you would like?
   3. you get as much routine in your work as you would like?

7. (money)
   0. the amount of money you make is completely unsatisfactor
   1. the amount is poor but acceptable?
   2. the amount is fair but you should be making more?
   3. you are satisfied that the money you make is good for similar work in this area?

8. (secure job)
   0. you have no job security at all?
   1. you have very little job security?
   2. you have some job security but not enough?
   3. you have all the job security you want?

9. (responsibility and being important)
   0. you have no responsibility and are not important to your company?
   1. you have very little responsibility or importance?
   2. you have some responsibility and importance but not enough?
   3. you have all the responsibility and importance you want?

10. (work in my own way)
    0. you are never able to do your work in your own way?
    1. you are rarely able to do your work in your own way?
    2. you are able sometimes but not often enough?
    3. you do your work in your own way as much as you would like?

11. (physical surroundings)
    0. the physical surroundings in your work are highly unsatisfactory?
    1. the surroundings are barely satisfactory?
    2. the surroundings are satisfactory but should be better?
    3. the surroundings are completely satisfactory?

12. (quality work)
    0. you never have the opportunity to do quality work?
    1. you rarely have the opportunity?
    2. you have some opportunity but not enough?
    3. you have as much opportunity as you would like?

13. (other) Use a similar scale, where
    0. none
    1. little
    2. some but not enough
    3. maximum

Information Network

In your work you require information from many different people. Sometimes the information you receive from some groups is more reliable than that which you receive from other groups. Besides your confidence in the general reliability of this raw information, you also learn to correct for any specific biases of some groups. For example, one group may be optimistic by about ten percent, another group may generally provide fairly accurate information, a third group may be pessimistic by fifty percent. Thus, by learning these consistent biases, you can transform the raw information given to you into more reliable information. Also, you may feel that some groups are less reliable as information sources because they sometimes withhold information.

Some groups may provide both administrative and technical information. For example, a statement of when a report will be ready is administrative information, while the content of the research report is technical information. If the reliability of a group significantly differs for technical information and for administrative information, please indicate your confidence for both types of information. Indicate your confidence (in the left hand columns) for whichever type of information is more important for your work. For whichever type of information is of secondary importance, circle that secondary type (Administrative or Technical) and indicate your confidence in the right hand columns.

If the reliability of a group is not significantly different for the two types of information, use only the left hand columns.

For each of the below groups, please indicate 1) your general confidence in them as a source of raw information and 2) your general confidence in them as a source of information after you have transformed it.

Please use a scale from 1 to 100, where 100 is absolute confidence. That is, what are the odds that this group provides you with reliable information.

Confidence (1-100)			Secondary type (only if necessary)		
Raw	Transformed	Information obtained from:	Raw	Transformed	
____	____	People in general			
____	____	Your best friend			
____	____	Focal group	____	____	A T
____	____	Target group alpha	____	____	A T
____	____	Target group beta	____	____	A T
____	____	Target group gamma	____	____	A T

Beliefs

Please answer these questions for <u>each</u> of the groups indicated using the attached answer sheet.

Please use the following scales for questions 1 through 4.

For questions 1, 3, & 4:	For question ②:
5 - to a very great extent	5 - positively not
4 - to a considerable extent	4 - probably not
3 - to some extent	3 - I don't know
2 - to a very little extent	2 - probably yes
1 - not at all	1 - positively yes

1. Suppose you were having some sort of difficulty in your job. To what extent do you feel _____ would be willing to go out of their way to help you if you asked for it?

② In solving their own problems and meeting their own goals, do you feel that _____ would ever deliberately hurt you?

3. To what extent do you feel they would try to avoid hurting you?

4. We all respect the knowledge and judgment of some people more than others. To what extent do you have this kind of respect for _____?

Questions 5 through 9 consist of pairs of items. Each pair consists of two alternatives, A and B. You are asked to indicate your preference by using one of these indicators:

A - Statement A is entirely preferred to Statement B as an expression of my opinion

a - Statement A is somewhat preferred to Statement B.

? - I cannot choose between A and B.

b - Statement B is somewhat preferred to Statement A.

B - Statement B is entirely preferred to Statement A as an expression of my opinion.

Please show your leanings on each item, even if you do not feel strongly on the topic. Please choose between alternatives, even though both may seem acceptable to you, or both unacceptable.

5. A. Most of these people can be trusted.
   B. You can't be too careful in your dealings with these people.

6. A. Most of these people are inclined to help others.
   B. Most of these people are inclined to look out for themselves.

7. A. If you don't watch yourself, these people will take advantage of you.
   B. Even if you don't watch yourself, these people will not take advantage of you.

8. A. None of these people is going to care much what happens to you, when you get right down to it.
   B. These people do care what happens to you, when you get right down to it.

9. A. Human nature for these people is fundamentally competitive.
   B. Human nature for these people is fundamentally cooperative.

	People-in-general	Focal Group	Target Group A	Target Group B	Target Group C	Target Group D	Target Group E
1.							
2.							
3.							
4.							

5.							
6.							
7.							
8.							
9.							

Disclosure

Please answer these questions for each of the groups indicated using the attached answer sheet.

People differ in the extent to which they let other people know them. Some of the things about yourself you will regard as more personal and private than others; people differ widely in what they consider appropriate to let others know, and what they consider is nobody's business but their own.

Please indicate (in the left columns) the extent that you have talked about each item to the specific group indicated; that is, the extent to which you have made yourself known to them. Then (in the right columns) indicate the extent that they have made themselves known to you. Please use this scale:

0: This group doesn't know me in this respect, because I haven't told them, or let them know in any other ways. (They have told me nothing.)

1: This group has a general idea of this aspect of me. (I have only a general idea about this aspect of them.)

2: This group fully knows me in this respect. (I know them fully in this respect.)

X: Write an X instead of an 0 for those items which you would not confide to this group even if that group asked you to reveal the information. (They have not and will not confide about this aspect of themselves.)

1. What I find to be the worst pressures and strains in my work.
2. What I find to be the most boring and unenjoyable aspects of my work.
3. What I enjoy most, and get the most satisfaction from in my present work.
4. What I regard as my chief handicaps to doing a better job in my work.
5. What I feel are my special strong points and qualifications for my work.
6. How I feel that my work is appreciated by others (eg. boss, fellow-workers, wife, etc.)
7. My ambitions and goals in my work.
8. My feelings about the salary or rewards that I get for my work.
9. How I feel about the choice of career that I made--whether or not I'm satisfied with it.
10. How I really feel about the people that I work for, or work with.
11. The aspects of my personality that I dislike, worry about, that I regard as a handicap to me.
12. What feelings, if any, that I have trouble expressing or controlling.
13. Things in the past or present that I feel ashamed and guilty about.
14. The kinds of things that just make me furious.
15. What it takes to get me feeling real depressed and blue.
16. What it takes to get me real worried, anxious, and afraid.
17. What it takes to hurt my feelings deeply.
18. The kinds of things that make me expecially proud of myself, elated, full of self-esteem or self-respect.
19. My personal standards of beauty and attractiveness in women--what I consider to be attractive in a woman.
20. The things that I regard as desirable for a man to be--what I look for in a man.
21. The kind of party, or social gathering that I like best, and the kind that would bore me, or that I wouldn't enjoy.
22. My favorite spare-time hobbies or interests.
23. My views on the present government--the president, governmental policies, etc.
24. My views on the segregation of Whites and Blacks.
25. My feelings about how parents ought to deal with children.

They Know Me

	Your best friend	Focal Group	Target Group A	Target Group B	Target Group C	Target Group D	Target Group E
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							
21.							
22.							
23.							
24.							
25.							

I Know Them

Your best friend	Focal Group	Target Group A	Target Group B	Target Group C	Target Group D	Target Group E

Decision Evaluation

Decision event _____

_____ Date of event _____

If a decision event is already indicated on the top of this page, you need not read the rest of this paragraph but can skip to the next paragraph. If no event is already indicated, please identify a decision made within the past year or so which has had significant consequences for you or your work group. Both representative and controversial decisions may be included.

The above decision was made in the past. Considering the things that have happened since that time, ie. your increased knowledge of some of the consequences of that decision, please circle (in the left hand column) whether you now

A - strongly approve
a - approve
? - are indifferent
d - disapprove
D - strongly disapprove

of the decision, when considered from the viewpoint of each of the below groups. Then (in the next column) indicate how sure you are of your evaluation. Use a scale from 1 to 10, where 10 is absolutely certain.

Next, indicate how important the consequences of the decision are to each of the groups. This time, use a scale from 1 to 100, where 1 is not important at all. Finally, indicate which of the groups had primary responsibility for the decision

Evaluation	Sure 1-10	From the viewpoint of:	Importance 1-100	Responsible
A a ? d D	____	Yourself	____	____
A a ? d D	____	Focal group	____	____
A a ? d D	____	Target group alpha	____	____
A a ? d D	____	Target group beta	____	____
A a ? d D	____	Target group gamma	____	____
A a ? d D	____	The Company	____	____
A a ? d D	____	"Science"	____	
A a ? d D	____	Society, people in general	____	
A a ? d D	____	An overall evaluation	____	

Intervening Events

Have any significant events occured since you last completed these scales which you feel may have caused you to answer some of these questions differently than you would have answered if the event had not occured. For example, an important job change, major change in business conditions, significant personal events, etc.

Yes No (circle)

If yes, would you briefly describe the events: _____

Participant Background Data

Name _____

Age _____ Sex: M F (1 2) Today's date _____

How many total years of formal education did you complete, including school, university, & technical school? _____

Degrees: less than HS=1, HS=2, BS=3, MS=4, PhD=5 _____

Company mail address _____

_____ Phone _____

Current organizational position & title _____

_____

Years in present position _____ Years with company _____

Number of people reporting directly to you _____

Name & title of your current direct supervisor _____

_____

How many levels of supervision are there in your total laboratory from the first level supervisor to the head of the R&D laboratory? _____

How many levels of supervision are there above your position? _____

Is there anything special that might particularly set you apart from other members of your group in terms of what you work on, how you spend your time, your responsibilities, etc?

Yes (1) No (2) If so, please describe briefly.

_____

_____

Please make any comments which you feel may be helpful in this study. _____

_____

/Income question for Company J/

Please indicate the letter which corresponds to your family's annual income.

A: Under $3000

B: $3000 to $4999

C: $5000 to $6999

D: $7000 to $9999

E: $10,000 to $14,999

F: $15,000 to $19,999

G: $20,000 to $24,999

H: $25,000 and over

_____

Work Relationships

These questions concern the nature of the work relationship between your group and various other groups.

Work relationships between two groups may be considered from your viewpoint to be one of four kinds:

S - Sent. The decisions and information outupt of your group largely structure or determine on what the other group works.

W - Intertwined. The work of each group structures how the other group works; both groups must work concurrently for either to be able to adequately perform its work.

R - Received. The decisions and information output of their group largely structure or determine on what your group works.

I - Independent. Each group can adequately perform its work without appreciably affecting the other group's work.

For each group, please circle the letter indicating the kind of work relationship your group has with it.

We are also interested in how important the work of these other groups is to the functioning of your own group. This question looks at importance in terms of the time nature of the work relationship. Assume that for some reason suddenly no information were available from the other group to anyone--in essence, that they ceased to exist. What is the longest time your group could wait without too much disruption to its normal work before you or someone else would have to begin doing their work--or at lease that part of it which pertains to your group?

1 - Up to one day
2 - Up to one week
3 - Up to one month
4 - Up to three months or so
5 - Up to six months or so
6 - A year or longer

For each of the below groups, please indicate the kind and time nature of your work relationship with them.

Group	Time	Kind
Focal group	____	S W R I
Target group alpha	____	S W R I
Target group beta	____	S W R I
Target group gamma	____	S W R I

Group Effectiveness Rating

We are asking you to complete the enclosed forms, which request your judgments about groups working within your organization. These forms are rather crucial ones for the study, so we need care from you on them. Your answers will be held strictly confidential. This data will not be fed back within your organization.

Groups work to meet some of the needs of the organization. They also work to meet some of their own needs, such as doing their own work, working in their own way, or doing things they as a group want to do. That is, groups often develop subgoals to guide their operation. These subgoals may contribute toward the overall effectiveness of the organization, they may have no effect, or they may impair the organization's effectiveness.

When you fill out the rating scales, please remember that a group's contribution to the effectiveness of the organization may or may not be related to its contribution to the effectiveness of itself as a group, toward its own subgoals.

We are asking you to rate some of the groups within your organization. As an aid in doing this, please think back over the many different work groups you have known. Some of these groups made outstanding contributions to the overall effectiveness of the organization, some were average, and some less effective. Please look at the Reference Scale below, and write in the names of three work groups which you can vividly recall.

Reference Scale

8: _____
A group which was more adequate, more effective than most in your organization; a group which was functioning quite fully.

5: _____
A group which was generally typical of groups in your organization.

2: _____
A group which was less adequate, less effective than most in your organization; a somewhat poorly functioning group.

As you fill out the rating scales on the following page, please keep these three "reference groups" in mind. Use them as "anchors." Your regular judgment will be: "Is the group I am now rating more effective than group (2), between (2) and (5), as effective as (8), or more so?--and so on. Note that ratings of 0 or 1, and 9 or 10 are possible for you to make. Some groups you are now rating may well exceed your reference groups. Rate a group "X" if you feel you are not familiar enough with it to give it a numerical rating.

Think carefully of how well each group has, during the past few months, contributed toward the effectiveness of the organization.

After rating each group on its contribution toward the effectiveness of the organization, please rate each group on its effectiveness of itself as a group, that is in achieving its own subgoals.

Group Effectiveness Ratings

Please rate the groups as of now, May 1970:

Effectiveness (0-10) Organizational	Group	
5	_____	Reference group generally typical of groups in organization.
_____	_____	Focal group one
_____	_____	Focal group two
_____	_____	Focal group three
_____	_____	Target group alpha
_____	_____	Target group beta
_____	_____	Target group gamma
_____	_____	Yourself (rating optional)
_____	_____	Group generally typical of groups in American organizations.

Project yourself back four months, to January 1970.
Please rate the groups as you then would have done:

_____	_____	Reference group generally typical of groups in organization
_____	_____	Focal group one
_____	_____	Focal group two
_____	_____	Focal group three
_____	_____	Target group alpha
_____	_____	Target group beta
_____	_____	Target group gamma
_____	_____	Yourself (rating optional)
_____	_____	Group generally typical of groups in American organizations.

Finally, project yourself back eight months, to September 1969.
Please rate the groups as you then would have done:

_____	_____	Reference group generally typical of groups in organization
_____	_____	Focal group one
_____	_____	Focal group two
_____	_____	Focal group three
_____	_____	Target group alpha
_____	_____	Target group beta
_____	_____	Target group gamma
_____	_____	Yourself (rating optional)
_____	_____	Group generally typical of groups in American organizations.

Organizational OD Climate

This form is designed to help access your organization's reaction to organizational development programs. Please use the back of the sheet for longer answers; identify the question letter.

How many levals of supervision are there in your total organization from the first level supervisor to the head of the organization? _____
Define"hierarchical level"one as that of the head of the organization, two the level reporting to him, etc.; this definition will be used below.
Total number of organization members? _____

A. How would you describe your current OD program. If the program has recently changed or soon will change, indicate the appropriate time period with each answer. _____

1. none
2. individuals sent away to stranger lab
3. individuals go to in-house cousins lab
4. work group goes to a team building lab
5. continuing OD work with a natural work group
6. continuing OD with several interacting work groups
7. continuing OD with most groups in organization
8. total organizational participation and follow-through

What is the approximate number and "hierarchical level" of organization members that have attended external or in-house labs. Indicate changes over time.

_____

_____

_____

How are participants selected for laboratory programs? _____

_____

_____

B. What is the amount and extent of knowledge and support of OD in your organization. Use these scales:

Knowledge	Support
1. none	1. actively against any kind of OD
2. recognizes terms (eg. OD, here/now, process)	2. against OD
3. has read some OD literature	3. indifferent to OD
4. rather well informed	4. lets OD occur
5. has attended a lab	5. supports limited OD programs
6. has attended several labs	6. fully supports OD

Individual or group	Knowledge	Support
President	____	____
Top management	____	____
(fill in important others:)		
_____	____	____
_____	____	____
_____	____	____
_____	____	____
_____	____	____

DLK-phd/Q17.1/22apr70.

C. Evaluation of OD.

How many months do you feel you have after the beginning of an OD program (eg. a team building lab) to show results? _____

To whom in the organization do you feel you must show these results and what is their "hierarchical level"? _____

_____

_____

_____

_____

How do you feel your OD efforts are evaluated; what are the criteria? (If formal objective measures are used, please enclose a copy of the questionnaire, scale, etc.) _____

_____

_____

_____

_____

_____

_____

D. Your OD Group.

Formal title of OD group: _____

_____

Name of head of group _____ for how long? _____

Current size of group: total _____, of which _____ are professionals.

Date OD group was established _____

"Hierarchical level" head of OD reports to: _____

Graph qualitative funding for OD projects during the past five years or so, you need not mention specific quantitative figures.

- -

- -

- -

- -

- -

- -

date

E. Date this form completed _____

Your name and title _____

DLK-phd/Q17.1/22apr70.

Table 27 . Scoring Key*

Q01.01 Scale completion time in minutes.
"Total"= total actual time for all scales in packet.
"Stan"= standard time; total time on scales Q5,Q6,Q7,Q8 corrected to 8 rated groups.

Q05A Job aspects--scores may range from 0 to 100.
Index= $\Sigma(x_I * x_{II}) / \Sigma 3x_I$

Q05B T B BONJ M W indicates distribution of Job Aspects scores (A) compared with Bonjean's (1966) study of representative samples of Businessmen, Managers, and Workers (T stands for total). Shown in rows 0,1,2,3 are $A \geq \bar{x} + s$, $\bar{x} + s > A \geq \bar{x}$, $\bar{x} > A \geq \bar{x} - s$, $\bar{x} - s > A$, where $\bar{x}$ and s are the mean and standard deviation of the Bonjean samples.

Q06 Information network (Confidence)--scores may range from 1 to 100.

Q07 Trust index--scores may range from 5 to 25.
Respect--scores may range from 1 to 5.

Q08 Disclosure, per rated group:
Minimum possible score is 25, "would not confide."
All "doesn't know me" responses would score 50.
All "has a general idea" responses would score 75.
Maximum possible score is 100, "fully knows."
Disclosure difference (self - other) may range from 0 to 75.
Item recoding: "X"= 1; "0"= 2; "1"= 3; "2"= 4.

Q09 Decision evaluation.
"Evaluation" scores may range from 5 (strongly agree) to 1 (strongly disagree).
"Sure" scores may range from 1 to 10.
"Importance" scores may range from 1 to 100.

Q12. Intergroup work relationships.
"Time"score indicates the rated importance of the work relationship.
After the related group "ceased" to exist, the longest time the focal group could wait without too much disruption to its normal work before someone would have to begin doing at least part of the rated group's work:

1= up to 1 day	4= up to three months or so
2= up to 1 week	5= up to six months or so
3= up to 1 month	6= a year or longer

"Kind" data are taken as an "independency" index:
4= S,sent; 3= W,interwinded; 2= R,received; 1= I,independent.
"I" scores are omitted from "Kind" group averages, which range from 2 to 24.
The average number of "I's" per respondent per focal group is indicated, as is the total number of "I" ratings for each rated group.
The mean "time" and "kind" scores for all target groups averaged over the number of target groups provides an index which may be used to evaluate the target group averaged (Tar Avg) data from the other scales.

Q03 Experience Inquiry.
Items 1,8,9,10,12,14,26,31,32,33,40,42,45,52,53,57 are not scored on EI41.
Items 57-68 are scored only on EI68.

Q04-K K scale.
$|KD1| = |K - 13| + 1$, where 13 was taken as the general population mean.

*Additional interpretative data is presented in Table 29 , "Norms."

Table 28. Self-Actualization Item Distributions from Bonjean's 1966 Study

B-BONJ	D-01	-A	D-02	-A	D-03	-A	D-04	-A	D-05	-A	D-06	-A	D-07	-A	D-08	-A	D-09	-A	D-10	-A	D-11	-A	D-12	-A	D-13	-A	D-14	-A	D-15	-A	T	B	BONJ	M	W
0	98	0	54	1	8?	0	95	3	57	0	101	0	8	2	22	4	37	1	62	0	52	1	36	2	82	1	98	1	104	0	23	23	23	27	
1	1	3	10	2	7	2	2	1	9	2	0	0	8	8	4	3	8	1	8	0	14	2	10	2	0	1	0	0	0	0	34	34	17	34	
2	3	0	22	7	8	6	2	1	17	6	2	0	20	48	16	22	18	4	12	3	21	30	23	21	4	7	5	2	0	0	32	35	30	31	
4/3	2	3	18	40	9	16	5	4	21	39	1	3	68	38	62	53	41	61	22	39	17	19	35	43	18	13	1	3	0	0	15	12	34	12	
TOT	6	6	50	50	24	24	9	9	47	47	3	3	96	96	82	82	67	67	42	42	52	52	68	68	22	22	6	6	0	0	104	104	104	104	

M-BONJ	D-01	-A	D-02	-A	D-03	-A	D-04	-A	D-05	-A	D-06	-A	D-07	-A	D-08	-A	D-09	-A	D-10	-A	D-11	-A	D-12	-A	D-13	-A	D-14	-A	D-15	-A	T	B	BOJN	M	W
0	104	0	58	0	64	0	90	1	29	0	104	1	7	0	15	1	14	0	66	1	39	0	28	0	87	1	101	0	108	0	27	25	25	32	
1	4	0	16	0	11	3	5	0	17	0	3	0	8	1	9	1	3	1	9	0	14	2	8	0	3	0	4	0	0	0	45	47	37	47	
2	0	0	18	1	29	11	9	2	24	17	1	1	17	31	15	15	16	43	21	9	29	34	31	14	5	10	1	2	0	0	29	30	25	23	
4/3	0	4	16	49	13	30	4	15	38	62	0	2	76	69	69	76	75	50	12	32	26	33	41	66	13	10	2	5	0	0	7	6	21	6	
TOT	4	4	50	50	44	44	18	18	79	79	4	4	101	101	93	93	94	94	42	42	69	69	80	80	21	21	7	7	0	0	108	108	108	108	

W-BONJ	D-01	-A	D-02	-A	D-03	-A	D-04	-A	D-05	-A	D-06	-A	D-07	-A	D-08	-A	D-09	-A	D-10	-A	D-11	-A	D-12	-A	D-13	-A	D-14	-A	D-15	-A	T	B	BOJN	M	W
0	114	1	57	0	101	0	85	0	73	0	103	0	3	0	14	0	32	0	80	2	56	1	34	0	97	1	115	0	120	0	17	14	14	22	
1	3	1	16	7	5	5	5	2	9	3	7	1	3	0	2	4	9	3	10	2	15	2	8	9	2	2	0	0	0	0	41	44	26	39	
2	1	1	30	11	5	10	11	10	27	17	7	2	20	33	11	36	27	41	13	12	29	46	33	34	8	13	1	3	0	0	34	43	33	40	
4/3	2	3	17	45	9	4	19	23	11	27	3	14	94	84	93	66	52	44	17	24	20	15	45	43	13	7	4	2	0	0	28	19	47	19	
TOT	6	6	63	63	19	19	35	35	47	47	17	17	117	117	106	106	88	88	40	40	64	64	86	86	23	23	5	5	0	0	120	120	120	120	

T-BONJ	D-01	-A	D-02	-A	D-03	-A	D-04	-A	D-05	-A	D-06	-A	D-07	-A	D-08	-A	D-09	-A	D-10	-A	D-11	-A	D-12	-A	D-13	-A	D-14	-A	D-15	-A	T	B	BOJN	M	W
0	316	1	169	1	245	0	270	4	159	0	308	1	18	2	51	5	83	1	208	3	147	2	98	2	266	3	314	1	332	0	67	62	62	81	
1	8	4	42	9	23	10	12	3	35	5	10	1	19	9	15	8	20	5	27	2	43	6	26	11	5	3	4	0	0	0	120	125	80	120	
2	4	1	70	19	33	27	22	13	68	40	10	3	57	112	42	73	61	88	46	24	79	110	87	69	17	30	7	7	0	0	95	108	88	94	
4/3	4	10	51	134	31	50	28	42	70	128	4	19	238	191	224	195	168	155	51	95	63	67	121	152	44	30	7	10	0	0	50	37	102	37	
TOT	16	16	163	163	87	87	62	62	173	173	24	24	314	314	281	281	249	249	124	124	185	185	234	234	66	66	18	18	0	0	332	332	332	332	

Four samples of item distributions from Bonjean's 1966 study are presented: for the Total of 332 subjects, 104 Businessmen, 108 Managers, and 120 Workers. "Desired" and "Actual" responses to the fourteen items (12 plus 2 "other" blanks) of the Q05 scale used by Bonjean are indicated. Column totals for the fourteen items omit "no response" scores (Desired = 0).

Total Self-Actualization (SA) scores within one standard deviation of the mean and scores more distant than one standard deviation of the mean are indicated under the column heading "T B BONJ M W." Row "0" indicates the number of scores where SA $\geq$ mean + S.D., row "1" indicates scores where mean + S.D. > SA $\geq$ mean, row "2" indicates scores where mean > SA $\geq$ mean - S.D., and row "4/3" indicates scores where mean-S.D. > SA. Means and standard deviations were computed for each of the four separate samples (Total, Businessmen, Managers, and Workers) and Self-Actualization score distributions are reported for each sample.

Table 29a. "Norms" from Various Studies for Several Scales

Q07-Trust Index. (Analysis by Kegan of data presented in Almond & Verba, 1965: 213. Data transformation assumes perfect Guttman responses.)

Percent agreeing to pro-trust questions

Raw score	01-03	04-05	08-10	12-15	16-20	20-25	n
U.S.		80	62	55	32	31	970
U.K.		84	55	49	28	25	963
Germany		58	28	19	19	15	955
Italy		55	39	27	7	5	995
Mexico		82	30	22	15	6	1007

Percentage receiving raw score

U.S.	20	18	7	23	1	30
U.K.	16	29	6	21	3	24
Germany	42	30	9	0	4	14
Italy	45	16	12	20	2	4
Mexico	18	52	8	7	9	5

Percentile

Raw score	01-03	04-05	08-10	12-15	16-20	20-25	Approximate mean raw score
U.S.	20	38	45	68	69	99	11-14
U.K.	16	45	51	72	75	99	6-9
Germany	42	72	81	81	85	99	4
Italy	45	61	73	93	95	99	4
Mexico	18	70	78	85	94	99	4-5

Q05-Job Aspects. (Analysis by Kegan of raw data supplied by Bonjean, July 1970. The Bonjean data is reported in Bonjean, 1966 and in Bonjean & Vance, 1968.)

	Total	Bus'men	Mangers	Workers
Number in sample	332	104	108	120
Mean	86.0	85.3	89.5	83.6
Median	88.2	87.7	91.3	84.2
Standard deviation	11.52	12.82	9.04	11.58
High range	100	100	100	100
Low range	47	47	67	52

(Bonjean, 1966: 154; Bonjean & Vance, 1968: 310 report the following.)

Raw score	79	95
Percentile	28	73

Q03-Experience Inquiry. (Tabular data by Kegan from graph presented in Fitzgerlad, 1966: 22.)

Raw score (EI56)	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39
Percentage	2	3	5	10	17	11	16	15	9
Percentile	1	4	9	19	36	47	63	78	87

40-42	43-45	46-48	49-51	52-54	
5	3	2	1	1	mean= 31
92	95	97	98	99	S.D.= 7.7
					n= 143

Table 29b. "Norms" from Various Studies for Several Scales

Q04 MMPI-Es. (Dahlstrom & Welsh, 1960: 440-442.)

Raw score	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50
T score* (males)	87	86	85	83	82	80	78	77	75	74	72	70	69	67	66	64	62	61	59
T score (females)	94	92	91	89	87	86	84	83	81	80	78	76	75	73	72	70	69	67	65

	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31
	58	56	54	53	51	49	48	46	45	43	41	40	38	37	35	33	32	30	29
	64	62	61	59	58	56	54	53	51	50	48	47	45	43	42	41	39	37	36

	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
	27	25	24	22	20	19	17	16	14	12					
	34	32	31	29	28	26	24	23	21	20	18	17	15	14	12

Q04 MMPI-K. (Dahlstrom & Welsh, 1960: 440-442.)

Raw score	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
T score	83	81	79	77	75	74	72	70	68	66	64	62	61	59	57	55	53	51	49

	11	10	9	8	7	6	5	4	3	2	1	0
	48	46	44	42	40	38	36	35	33	31	29	27

* $T = \frac{10\,(x - \bar{x})}{S.D.} + 50$, or $\frac{T - 50}{10} = \frac{(x - \bar{x})}{S.D.}$

Table 30. "Extremity" of Responses for Experience Inquiry Items--
Dissertation Samples: 1/GPV (n= 71), 1/J (n= 26)

Item	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
Number Scoring (GPV)	47	22	8	10	34	34	40	44	60	15	31	60	20	48	50	33	28	28	30	43
Percentage Scoring	66	31	11	14	48	48	56	62	85	21	44	85	28	68	70	46	39	39	42	61
Number Scoring (J)	17	16	7	3	11	8	15	18	16	9	5	18	13	15	11	10	10	9	10	15
Percentage Scoring	65	62	27	12	42	31	58	69	62	35	19	69	50	58	42	38	38	35	38	58

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
	49	33	35	20	25	31	58	38	27	49	45	49	21	47	33	62	17	22	17	33
	69	46	49	28	35	44	82	54	38	69	63	69	30	66	46	87	24	31	24	46
	14	15	13	8	8	10	21	10	10	14	23	8	15	24	15	19	3	10	10	17
	54	58	50	31	31	38	81	38	38	54	88	31	58	92	58	73	12	38	38	65

	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
	27	53	27	54	50	20	57	27	16	7	52	32	62	53	26	42	67	64	51	51
	38	75	38	76	70	28	80	38	23	10	73	45	87	75	37	59	94	90	72	72
	5	11	24	22	9	3	19	10	4	10	24	6	17	19	16	7	26	18	12	22
	19	42	92	85	35	12	73	38	15	38	92	23	65	73	62	27	100	69	46	85

	61	62	63	64	65	66	67	68
	52	58	52	15	3	10	60	31
	73	82	73	21	4	14	85	44
	22	21	25	7	1	8	20	15
	85	81	96	27	4	31	77	58

Table 31a. Summary Group Scores (means): First Administration Data

	G01	G02	G03	P01	P02	P03	V01	V02	V03	1/J01	1/J02	2/J02
Maximum n	7	8	10	10	6	6	10	5	9	11	15	14
Standard time	50.8	50.5	88.3	42.0	67.5	78.4	57.2	87.8	57.0	73.4	60.2	41.5
Work relations-Time				3.9	3.7	2.6	2.7		2.8			
Work relations-Kind				2.7	2.9	2.4	2.2		2.3			
EI-56	26.7	29.9	26.9	23.5	29.5	23.0	29.8	32.6	32.8	25.2	28.8	29.0
Es	48.7	48.8	46.2	51.1	49.3	54.2	48.7	47.0	49.3	46.2	39.9	39.4
K	12.1	14.2	13.5	18.0	14.3	14.5	15.9	11.6	14.7	12.5	11.3	11.7
Self-Actualization	80.6	75.4	69.8	79.8	80.4	84.7	73.2	78.7	80.6			
Confid-T Tar Avg	88.0	81.3	80.8	82.2	80.0	86.2	72.7	83.2	75.5	60.6	60.4	62.1
Confid-T People	80.7	73.1	74.7	70.0	70.7	67.0	72.0	82.0	71.1	86.3	89.3	87.7
Confid-T Friend	88.6	91.3	90.8	88.3	89.6	81.0	86.8	91.0	87.8	64.4	66.1	62.9
Confid-T Focal	89.7	90.0	80.0	88.0	86.4	93.0	82.0	84.0	83.3	70.0	70.0	69.3
Confid-D Tar Avg	11.0	5.8	17.0	6.0	6.6	3.5	9.0	10.8	6.6	10.0	15.4	19.6
Confid-D People	31.4	8.8	16.7	10.5	7.9	3.0	15.0	9.0	12.2	6.3	16.8	17.0
Confid-D Friend	14.3	8.1	17.4	3.5	3.4	3.5	4.0	3.0	9.4	3.8	18.2	14.3
Confid-D Focal	12.6	3.8	8.4	6.0	6.4	2.5	8.5	7.0	5.0	13.3	16.8	15.7
Trust Tar Avg	17.9	17.3	16.7	17.6	17.2	20.3	16.7	18.2	17.3			
Trust People	13.9	15.6	16.1	16.5	13.7	16.3	16.6	18.2	16.4	14.2	15.3	13.7
Trust Focal	20.3	18.7	21.2	20.9	19.3	22.0	20.4	20.2	19.7	21.8	20.9	19.9
Respect Tar Avg	3.5	3.5	3.5	3.4	3.3	3.7	3.3	3.6	3.3			
Respect People	3.0	3.5	3.4	3.2	2.4	2.7	3.2	3.6	3.0	3.0	3.0	3.1
Respect Focal	3.9	3.9	4.0	3.8	3.9	4.3	4.1	3.8	3.9	3.5	3.5	3.4
Self Disclosure Friend	77.4	88.0	90.0	88.5	90.6	90.3	88.6	87.0	87.6	83.0	84.1	89.5
Self Disclosure Focal	79.7	84.5	87.5	86.3	87.1	85.5	86.1	83.0	80.9	84.9	84.2	90.0
Self Disclosure Tar Avg	83.5	85.2	85.9	88.5	90.7	87.5	86.5	89.1	87.1			
Org Effectiveness Boss	6.5	6.0	5.8	5.3	4.5	4.0	6.0	5.2	5.8			
Grp Effectiveness Boss	6.3	6.8	6.8	4.3	4.0	3.3	7.3	6.7	5.5			
Org Effectiveness Focal	8.0	6.8	5.5	6.1	6.1	7.2	6.8		6.0			
Grp Effectiveness Focal	7.6	7.6	6.3	6.2	4.2	6.2	7.0		5.0			
Org Effectiveness Self	8.5	5.0	7.0	5.6	6.7	5.7	6.5		7.0			
Grp Effectiveness Self	8.5	5.5	6.0	6.3	5.5	5.0	7.0		4.0			

Table 31b. Summary Group scores (standard deviations): First Administration Data

	G01	G02	G03	P01	P02	P03	V01	V02	V03	1/J01	1/J02	2/J02
Maximum n												
Standard time	17.40	24.51	26.89	17.25	23.03	47.09	13.83	46.33	14.85	38.25	18.84	14.33
Work relations-Time				1.54	1.75	1.77	1.83		1.49			
Work relations-Kind				0.56	0.60	0.67	0.71		0.46			
EI-56	7.85	7.72	8.44	4.86	5.06	4.93	8.06	6.53	3.71	6.18	6.09	5.22
Es	4.53	4.63	7.67	3.70	7.02	4.37	3.74	7.82	2.58	4.88	5.80	5.02
K	4.26	5.49	4.43	3.41	1.89	4.92	3.65	4.08	3.65	3.92	3.91	3.59
Self-Actualization	8.05	4.26	21.24	8.46	11.85	7.23	15.33	9.44	6.08			
Confid-T Tar Avg	8.08	14.81	14.58	12.46	11.90	11.79	15.83	15.99	13.50			
Confid-T People	8.21	22.35	13.70	13.96	9.79	14.00	10.77	10.30	11.49	15.50	20.57	17.90
Confid-T Friend	4.40	9.27	9.53	6.78	7.50	18.59	8.13	8.60	8.20	13.86	14.00	13.47
Confid-T Focal	6.69	8.29	20.86	7.48	5.15	5.16	12.08	5.83	7.45	16.09	19.10	18.20
Confid-D Tar Avg	13.83	7.30	26.07	7.78	7.90	5.13	9.19	11.89	8.83			
Confid-D People	25.17	7.40	13.04	12.54	7.95	4.00	6.32	6.63	8.20	10.31	17.27	12.17
Confid-D Friend	11.47	5.56	27.12	7.09	3.33	4.09	4.90	4.00	10.39	9.92	21.01	22.50
Confid-D Focal	14.77	4.84	12.05	10.91	3.50	3.55	8.08	9.80	6.24	6.96	24.47	15.22
Trust Tar Avg	4.31	5.36	5.78	4.16	3.33	4.97	6.28	4.83	3.33			
Trust People	3.18	6.06	5.34	4.30	3.01	2.92	5.06	4.17	3.92	4.02	6.20	5.24
Trust Focal	4.20	3.49	4.31	2.02	3.95	2.77	6.55	4.12	2.63	3.33	3.06	3.38
Respect Tar Avg	0.57	0.66	0.85	1.12	0.82	0.74	0.99	0.80	0.81			
Respect People	0.76	0.50	0.49	0.60	0.49	0.47	0.75	0.49	0.67	0.60	0.97	0.99
Respect Focal	0.35	0.60	0.77	1.08	0.64	0.75	0.94	0.40	0.60	0.50	0.81	0.81
Self Disclosure Friend	14.37	6.22	7.39	3.20	4.62	8.77	7.34	6.20	7.48	13.95	13.71	6.61
Self Disclosure Focal	14.67	4.56	5.12	3.72	2.90	9.36	5.92	5.02	13.71	14.12	13.27	4.16
Self Disclosure Tar Avg	16.43	15.80	13.23	5.14	4.58	8.39	10.75	6.29	10.57			

Table 32 . Summary Group Scores: Second and Third Administration Data

	means							standard deviations						
	2/P01	2/P02	3/P01	3/P02	2/P03	2/V01	2/V03	2/P01	2/P02	3/P01	3/P02	2/P03	2/V01	2/V02
Standard time	45.2	43.1	46.2	34.4	41.2	53.6	41.5	7.15	15.06	19.12	10.60	13.87	16.44	2.90
Self-Actualization	84.0	77.5	88.0	78.7	79.1	67.8	79.6	8.76	11.08	7.56	10.91	9.56	9.40	8.97
Confid-T Tar Avg	79.0	69.5	74.4	70.9	81.5	67.8	59.2	13.82	24.59	19.45	13.77	11.22	19.15	17.70
Confid-T People	77.2	58.8	77.1	59.2	65.0	72.2	60.0	8.20	21.32	11.91	10.17	12.58	14.74	14.14
Confid-T Friend	92.2	86.3	90.0	88.3	89.8	88.1	79.0	4.78	8.20	2.67	4.71	5.49	12.27	12.41
Confid-T Focal	87.8	88.8	87.1	89.5	88.0	80.0	78.7	7.11	3.31	5.25	4.61	6.32	13.94	5.45
Confid-D Tar Avg	6.4	8.4	10.0	12.2	1.8	8.8	6.3	6.39	11.46	7.67	14.47	4.98	7.27	7.89
Confid-D People	11.1	11.9	12.1	18.3	5.8	14.4	13.0	8.09	11.44	5.89	15.72	7.31	10.66	14.70
Confid-D Friend	5.6	10.0	4.3	9.2	3.7	6.6	11.0	4.37	16.58	4.16	13.97	7.34	7.03	15.62
Confid-D Focal	5.6	11.9	7.1	12.8	5.5	6.7	3.8	4.37	14.13	4.52	12.65	7.39	5.77	4.15
Trust Tar Avg	17.7	18.5	16.9	16.9	19.7	14.4	14.8	5.10	4.44	5.98	3.61	5.57	4.81	4.03
Trust People	18.7	11.5	17.4	10.7	11.8	12.8	15.2	3.27	4.80	2.77	4.42	3.89	3.74	2.04
Trust Focal	22.4	22.5	23.4	21.2	23.2	19.0	18.5	2.50	2.06	1.40	2.48	2.19	4.74	3.57
Respect Tar Avg	3.9	3.1	3.7	3.1	3.8	3.1	3.0	0.89	0.93	0.87	0.86	0.74	1.09	0.71
Respect People	3.4	2.4	3.6	2.2	2.8	3.1	2.8	0.50	0.48	0.49	0.69	0.69	0.87	0.40
Respect Focal	4.4	4.4	4.3	4.0	4.7	3.7	3.8	0.50	0.70	0.70	0.58	0.47	0.67	0.43
Self Disclosure Tar Avg	89.1	91.3	86.8	91.8	87.6	85.1	84.6	4.48	4.79	6.63	3.40	9.12	10.51	17.22
Self Disclosure Friend	86.0	87.6	91.1	86.3	90.5	89.1	86.5	5.37	2.06	6.24	4.11	5.71	7.32	5.68
Self Disclosure Focal	86.4	88.1	87.9	85.0	82.3	83.8	91.5	2.41	3.69	7.26	2.58	4.15	4.80	1.66
Maximum n	9	8	7	6	6	9	5							

Table 33a. Feedback Summary for Company G

GP	Trust			Respect			Confidence-T			Self Disclosure		
	G01	G02	G03	G01	G02	G03	G01	G02	G03	G01	G02	G03
3							88.6	91.3	90.8	77.4	88.0	90.0
4	20.3	18.7	21.2	3.9	3.9	4.0	89.7	90.0	80.0	79.7	84.5	87.5
5	19.0	15.0	18.7	3.7	3.4	3.8	92.9	75.0	83.0	83.7	84.7	87.8
6	18.9	16.7	14.8	3.6	3.5	3.4	89.3	82.9	80.5	83.6	85.6	89.7
7	18.8	14.7	16.8	3.5	3.5	3.3	87.1	62.1	84.3	84.1	85.2	89.9
8	16.5	20.9	15.3	3.2	3.7	3.4	85.8	87.1	75.6	83.1	84.1	85.9
9	16.9	18.0	18.3	3.3	3.4	3.4	86.7	80.0	80.0	83.6	85.9	76.3
10	17.0	18.9		3.3	3.4		82.2	90.8		83.6	85.5	
11	17.4			3.4			87.5			83.7		
12	18.7			3.7			91.7			82.9		
2	13.9	15.6	16.1	3.0	3.5	3.4	80.7	73.1	74.7			
1	17.9	17.3	16.7	3.5	3.5	3.5	88.0	81.3	80.8	83.5	85.2	85.9

Note: Target group code numbers refer to different target groups for G01, G02, and G03.

Table 33b. Feedback Summary for Group P01

GP	Trust			Respect			Confidence-T			Self Disclosure			Time	Kind
	770/	869/	469/	770/	869/	469/	770/	869/	469/	770/	869/	469/	X69/	X69/
3							90.0	92.2	88.3	91.1	86.0	88.5		
4	23.4	22.4	20.9	4.3	4.4	3.8	87.1	87.7	88.0	87.9	86.4	86.3	3.0	3.0
5	22.4	21.9	19.8	4.3	4.3	3.9	85.7	87.2	87.0	81.6	84.7	84.3	1.8	3.0
6	18.6	19.1	17.6	4.0	4.3	3.4	72.1	83.3	87.0	84.1	86.7	86.9	3.6	2.4
12	17.7	18.2	19.5	3.6	3.9	3.4	70.0	77.8	79.0	84.3	86.8	86.8	4.3	3.0
2	17.4	18.7	16.5	3.6	3.4	3.2	77.1	77.2	70.0					
7	17.0	19.1	18.4	4.0	4.1	3.7	80.0	82.8	84.4	86.9	89.4	88.4	3.6	2.9
8	17.0	16.6	17.9	3.6	3.7	3.2	76.4	80.0	83.8	89.7	90.4	89.5	3.8	2.9
9	16.6	18.2	18.2	3.4	3.9	3.4	75.7	80.6	83.8	86.7	90.0	89.7	3.0	2.9
13	16.3	15.7	17.5	4.0	3.9	3.6	77.1	79.4	82.2	89.3	91.2	89.3	5.3	2.0
11	15.1	16.3	16.0	3.3	3.3	2.6	71.7	70.6	74.4	89.4	91.3	92.4	5.9	
10	11.3	11.4	13.9	3.1	3.3	3.0	60.7	69.4	77.5	89.6	91.6	89.3	3.6	2.7
1	16.9	17.4	17.6	3.7	3.9	3.4	74.4	79.0	82.2	86.8	89.1	88.5	3.9	2.7

Table 33c. Feedback Summary for Group P02

GP		Trust 770/	Trust 170/	Trust 869/	Respect 770/	Respect 170/	Respect 869/	Confidence-T 770/	Confidence-T 170/	Confidence-T 869/	Self Disclosure 770/	Self Disclosure 170/	Self Disclosure 869/	Time 170/	Kind 170/
3	Friend							88.3	86.3	89.6	86.3	87.6	90.6		
4		21.2	22.5	19.3	4.0	4.4	3.9	89.5	88.8	86.4	85.0	88.1	87.1	2.2	3.0
7		18.7	20.2	18.6	4.0	4.0	3.6	80.8	71.4	86.7	91.2	91.1	89.3	4.1	3.0
5		18.3	19.1	17.6	3.2	3.6	3.6	77.5	80.0	83.6	89.2	92.9	89.4	4.6	2.5
9		18.2	20.9	17.6	3.5	3.4	3.3	72.5	81.3	80.7	90.7	90.7	88.7	3.4	3.0
10		18.0	20.5	20.0	3.0	3.3	3.9	73.3	68.2	86.6	93.3	91.5	90.3	3.5	2.8
11		16.5	20.4	17.1	3.0	2.8	3.0	70.0	68.9	78.6	91.8	90.7	91.7	4.5	3.3
12		16.3	16.3	18.1	3.5	2.8	3.6	74.2	64.5	73.3	92.3	91.7	91.3	2.3	2.6
8		15.2	15.2	15.1	2.5	2.6	2.6	60.0	62.6	70.7	91.8	92.0	92.3	1.4	3.4
6		14.0	15.0	13.9	2.3	2.6	3.0	56.0	58.9	80.8	94.0	89.7	92.7	5.5	2.8
2	People	10.7	11.5	13.7	2.2	2.4	2.4	59.2	58.8	70.7					
1	Target Gp Avg	16.9	18.5	17.2	3.1	3.1	3.3	70.9	69.5	80.0	91.8	91.3	90.7	3.7	2.9
	Self-Actualzn	78.7	77.5	80.4	Standard time			34.4	43.1	67.5	Total time		46.2	70.9	119.7

Table 33d. Feedback Summary for Group P03

GP		Trust 770/	Trust 170/	Respect 770/	Respect 170/	Confidence-T 770/	Confidence-T 170/	Self Disclosure 770/	Self Disclosure 170/	Time 770/	Kind 770/
3	Friend					89.8	81.0	90.5	90.3		
4		23.2	22.0	4.7	4.3	88.0	93.0	82.3	85.5	3.0	3.3
5		22.5	22.2	4.2	3.8	83.8	91.3	84.3	85.0	4.5	3.0
6		21.7	22.0	4.3	3.8	89.2	92.8	88.7	86.5	2.0	2.6
11		21.7	22.2	3.8	3.8	83.8	93.0	91.5	88.2	4.3	2.7
7		21.5	22.7	4.0	4.3	81.7	92.2	88.0	86.8	3.5	3.3
9		17.5	20.8	3.5	3.2	76.3	76.7	89.2	88.3	4.3	2.8
8		17.0	16.7	3.6	3.5	76.6	79.2	81.7	89.8	5.8	
10		15.8	15.8	3.2	3.3	78.0	78.3	90.0	87.7	2.8	3.0
2	People	11.8	16.3	2.8	2.7	65.0	67.0				
1	Target Gp Avg	19.7	20.3	3.8	3.7	81.5	86.2	87.6	87.5	3.9	2.9
	Self-Actualzn	79.1	84.7	Standard time		41.2	78.4	Total time	66.0	133.2	

Table 33e. Feedback Sumaries for Company V.

GP	V01 Focal	Trust 770/	Trust 270/	Respect 770/	Respect 270/	Confidence-T 770/	Confidence-T 270/	Self Disclsr 770/	Self Disclsr 270/	Time 770/	Kind 770/
3	Friend					88.1	87.8	89.1	88.6		
4	Focal	19.0	20.4	3.7	4.1	80.0	83.3	83.8	86.1	1.8	3.0
5		17.6	20.0	3.8	4.1	79.3	83.3	86.3	84.1	2.9	2.4
6		16.2	17.3	3.2	3.2	73.5	74.3	78.8	83.1	4.1	2.7
7		13.8	13.9	2.8	2.4	62.2	70.0	87.6	89.4	2.1	2.7
9		13.4	15.4	2.9	3.0	65.7	73.1	85.3	85.9	2.6	2.4
2	People	12.8	16.6	3.1	3.2	72.2	71.1				
8		11.8	17.1	2.8	3.6	60.7	75.6	87.7	90.2	3.6	2.0
1	Target Gp Avg	14.4	16.7	3.1	3.3	67.8	72.7	85.1	86.5	3.5	2.6
	Self Actualzn	67.8	73.2	Stanrd time		53.6	57.2	Total time		68.3	78.7
GP	V03 Focal										
3	Friend					79.0	87.8	86.5	87.6		
4	Focal	18.5	19.7	3.8	3.9	78.7	83.3	91.5	80.9	2.0	3.0
5		18.5	19.9	3.8	3.9	76.3	83.3	91.5	81.9	2.3	2.7
2	People	15.2	16.4	2.8	3.0	60.0	71.1				
6		15.0	18.1	2.7	3.3	50.0	74.3	67.7	85.8	4.4	
8		14.0	17.2	3.0	3.2	60.0	75.6	91.0	88.4	2.6	2.0
7		13.8	14.1	2.4	2.6	52.0	70.0	93.8	90.6	1.6	3.0
9		13.0	17.5	3.3	3.5	56.7	73.1	79.0	88.8	2.8	2.0
1	Target Gp Avg	14.8	17.3	3.0	3.3	59.2	75.5	84.6	87.1	3.2	2.3
	Self Actualzn	79.6	80.6	Stanrd time		41.5	57.0	Total time		52.5	99.7
GP	V02 Focal										
3	Friend						91.0		87.0		
4	Focal		20.2		3.8		84.0		83.0		
8			19.4		4.0		89.0		88.2		
5			18.4		3.8		87.0		86.0		
6			18.4		3.6		86.0		92.8		
2	People		18.2		3.6		82.0				
9			18.0		3.6		81.0		87.6		
7			17.0		3.0		73.0		91.0		
1	Target Gp Avg		18.2		3.6		83.2		89.1		
	Self Actualzn		78.7	Stanrd time			87.8	Total time			114.0

Table 33f. Feedback Summary for Group J02

GP		Trust		Respect		Confiden-T		Self Disclsr		(S-O) Disclsr	
		Jan	Mar	Jan	Mar	Jan	Mar	Jan	Mar	Jan	Mar
3	Friend					89.3	87.7	84.1	89.5	-1.5	0.7
8		23.4	23.9	4.7	4.9	96.3	93.4	86.1	86.7	-0.8	-0.4
6		23.1	23.1	4.3	4.3	78.4	81.5	85.7	87.0	-3.7	-2.6
5		21.7	21.1	3.7	3.6	70.0	69.3	85.2	89.1	-4.5	-2.7
7		21.5	21.3	3.6	3.7	63.9	66.9	84.5	89.7	-5.1	-4.6
4	Congregation	20.9	19.9	3.5	3.4	66.1	62.9	84.2	90.0	-5.0	-4.9
2	People	15.3	13.7	3.0	3.1	60.4	62.1				

Table 33g. Feedback Summary for Group J01

GP		Trust	Respect	Confiden-T	Self Disclsr	(S-O) Disclsr
		Jan	Jan	Jan	Jan	Jan
3	Friend			86.3	83.0	-2.4
8		23.9	4.4	91.3	82.1	-3.7
6		23.9	3.6	70.8	73.6	-6.9
5		23.6	3.4	70.0	81.1	-6.5
7		23.4	3.8	81.9	83.4	-6.4
4	Congregation	21.8	3.5	64.4	84.9	-6.0
2	People	14.2	3.0	60.6		

TABLE 34 • ORGANIZATIONAL AND GROUP EFFECTIVENESS RATINGS

G OF	FOCAL 1				FOCAL 2				FOCAL 3			
ORG BY	BOSS	FOCL	SELF	PEER	BOSS	FOCL	SELF	PEER	BOSS	FOCL	SELF	PEER
MAY 70	6.5	8.0	8.5	4.9	6.0	6.8	5.0	5.4	5.8	5.4	7.0	5.8
JAN 70	5.3	8.3	8.0	5.6	4.7	6.5	9.0	5.4	4.7	5.3	6.6	6.0
SEP 69	5.0	8.0	8.0	4.8	4.0	6.8	5.0	5.0	4.3	4.5	6.6	5.5
GROUP												
MAY 70	6.3	7.6	8.5	5.5	6.8	7.6	5.5	5.6	6.8	6.3	6.0	5.3
JAN 70	5.0	8.3	8.5	5.3	5.3	7.3	9.5	5.6	5.0	5.7	5.8	5.5
SEP 69	4.7	7.8	8.0	5.4	4.0	7.3	7.5	5.4	4.7	5.8	5.4	6.2

G OF	NUMBER REPORTING EFFECTIVENESS RATINGS											
	FOCAL 1				FOCAL 2				FOCAL 3			
ORG BY	B	F	S	P	B	F	S	P	B	F	S	P
MAY 70	4	5	2	7	4	6	2	9	4	7	5	10
JAN 70	3	4	2	7	3	4	2	9	3	7	5	8
SEP 69	3	4	2	6	3	4	2	8	3	6	5	8
GROUP												
MAY 70	4	5	2	6	4	5	2	9	4	7	5	7
JAN 70	3	4	2	6	3	4	2	9	3	7	5	6
SEP 69	3	4	2	5	3	4	2	8	3	6	5	6

P OF	FOCAL 1				FOCAL 2				FOCAL 3			
ORG BY	BOSS	FOCL	SELF	PEER	BOSS	FOCL	SELF	PEER	BOSS	FOCL	SELF	PEER
MAY 70	5.3	6.1	5.6	5.3	4.5	6.1	6.7	5.4	4.0	7.2	5.7	5.6
JAN 70	4.8	6.1	5.2	5.2	5.0	4.6	6.5	5.4	3.7	6.2	5.3	5.6
SEP 69	4.5	6.2	5.8	4.8	4.5	4.3	6.0	4.7	3.7	5.8	5.7	5.5
FEB 69	4.3	6.2	6.3	4.5	4.0	4.2	5.5	4.2	3.3	6.2	5.0	5.3
GROUP												
MAY 70	5.3	4.8	4.8	5.7	7.3	7.3	7.1	5.9	4.0	6.8	6.0	6.2
JAN 70	5.3	5.2	4.4	5.6	6.3	5.4	5.5	5.8	5.0	5.8	5.0	6.2
SEP 69	5.3	5.3	5.3	5.1	5.3	4.6	5.3	5.0	5.0	5.8	5.3	6.0
FEB 69	5.0	5.2	5.0	4.9	8.0	4.2	5.0	4.7	5.0	5.4	5.3	6.8

P OF	NUMBER REPORTING EFFECTIVENESS RATINGS											
	FOCAL 1				FOCAL 2				FOCAL 3			
ORG BY	B	F	S	P	B	F	S	P	B	F	S	P
MAY 70	4	7	5	9	4	8	7	10	3	5	3	7
JAN 70	4	7	5	9	4	8	6	10	3	5	3	7
SEP 69	4	6	4	9	4	7	6	10	3	5	3	6
FEB 69	3	6	4	8	3	5	4	10	3	5	3	6
GROUP												
MAY 70	3	6	5	9	3	8	7	10	2	5	3	6
JAN 70	3	6	5	8	3	8	6	10	2	5	3	6
SEP 69	3	6	4	9	3	7	6	10	2	5	3	5
FEB 69	2	6	4	8	1	5	4	10	2	5	3	5

V OF	FOCAL 1				FOCAL 2				FOCAL 3			
ORG BY	BOSS	FOCL	SELF	PEER	BOSS	FOCL	SELF	PEER	BOSS	FOCL	SELF	PEER
MAY 70	5.3	7.0	7.0	0.0	5.5	0.0	0.0	5.8	5.4	6.0	7.5	5.8
JAN 70	5.3	6.3	7.0	0.0	5.3	0.0	0.0	5.8	5.2	7.0	7.0	5.8
SEP 69	4.7	7.0	6.7	0.0	4.8	0.0	0.0	4.3	4.8	7.0	7.0	5.3
GROUP												
MAY 70	7.5	7.0	7.3	0.0	6.7	0.0	0.0	6.0	5.5	6.0	6.5	5.7
JAN 70	7.5	7.0	7.3	0.0	6.0	0.0	0.0	6.0	5.8	6.0	6.0	5.7
SEP 69	6.5	7.4	6.7	0.0	5.7	0.0	0.0	5.0	5.5	6.0	6.0	4.5

V OF	NUMBER REPORTING EFFECTIVENESS RATINGS											
	FOCAL 1				FOCAL 2				FOCAL 3			
ORG BY	B	F	S	P	B	F	S	P	B	F	S	P
MAY 70	3	6	3	0	4	0	0	5	5	2	2	4
JAN 70	3	6	3	0	4	0	0	5	5	2	2	4
SEP 69	3	5	3	0	4	0	0	3	5	1	1	3
GROUP												
MAY 70	2	6	3	0	3	0	0	4	4	2	2	3
JAN 70	2	6	3	0	3	0	0	4	4	2	2	3
SEP 69	2	5	3	0	3	0	0	2	4	1	1	2

TABLE 35 . SELF ACTUALIZATION SCORES

G	SET 1	FOCAL 1	FOCAL 2	FOCAL 3
NUMBER IN SAMPLE	25	7	8	10
MEAN	74.6	80.6	75.4	69.8
MEDIAN	78.4	82.5	75.6	76.3
STANDARD DEVIATN	14.97	8.05	4.26	21.24
HIGH RANGE	90	89	81	90
LOW RANGE	11	63	67	11

P	SET 1	FOCAL 1	FOCAL 2	FOCAL 3
NUMBER IN SAMPLE	22	10	6	6
MEAN	81.3	79.8	80.4	84.7
MEDIAN	79.5	78.5	77.6	87.6
STANDARD DEVIATN	9.46	8.46	11.85	7.23
HIGH RANGE	100	100	100	90
LOW RANGE	68	70	68	69

V	SET 1	FOCAL 1	FOCAL 2	FOCAL 3
NUMBER IN SAMPLE	24	10	5	9
MEAN	77.1	73.2	78.7	80.6
MEDIAN	79.6	74.1	76.9	81.3
STANDARD DEVIATN	11.91	15.33	9.44	6.08
HIGH RANGE	95	93	95	89
LOW RANGE	46	46	67	67

2P	FOCAL 1	FOCAL 2
NUMBER IN SAMPLE	9	8
MEAN	84.0	77.5
MEDIAN	81.5	75.3
STANDARD DEVIATN	8.76	11.08
HIGH RANGE	100	97
LOW RANGE	75	60

770/P	SET	FOCAL 1	FOCAL 2	FOCAL 3
NUMBER IN SAMPLE	19	7	6	6
MEAN	82.3	88.0	78.7	79.1
MEDIAN	82.5	88.4	80.2	77.7
STANDARD DEVIATN	10.33	7.56	10.91	9.56
HIGH RANGE	100	100	97	96
LOW RANGE	63	73	63	67

770/V	SET	FOCAL 1	FOCAL 3
NUMBER IN SAMPLE	14	9	5
MEAN	72.0	67.8	79.6
MEDIAN	71.1	66.7	77.8
STANDARD DEVIATN	10.83	9.40	8.97
HIGH RANGE	94	83	94
LOW RANGE	53	53	69

Table 36 . Evaluations of Decision to Participate in Northwestern-POMRAD Study

	1/G01	1/G02	1/G03	1/P01	1/P02	1/P03	1/V01	1/V02	1/V03	2/P01	2/P02	3/P01	3/P02	2/P03	2/V01	2/V03
Evaluation																
Self	3.5	3.0	3.7	4.0	4.4	3.6	3.9	3.2	3.3	4.0	3.9	3.7	3.3	2.5	3.4	3.4
Focal	4.0	3.7	3.4	4.0	4.4	3.6	3.5	3.0	3.6	4.3	3.9	4.0	3.3	2.8	3.6	3.4
Tar Avg	3.4	3.2	3.3	3.5	3.5	3.1	3.5	3.4	3.3	3.4	3.3	3.5	3.1	3.1	3.3	3.3
Company	3.3			3.7	3.6	3.2	4.0	3.6	3.4	3.6	3.5	3.3	3.2	3.2	3.4	3.4
Society	3.0			3.1	3.0	3.2	3.4	3.0	3.1	3.2	3.1	2.7	3.0	3.2	3.3	3.0
Overall	3.6			3.7	3.9	3.2	3.6	3.0	3.4	3.7	3.3	3.3	3.0	3.3	3.7	3.0
Sure																
Self	9.2	8.3	8.4	8.8	9.7	9.6	9.4	6.6	9.1	8.9	9.6	8.3	9.5	9.3	8.9	8.2
Focal	6.5	6.2	6.8	8.0	8.6	6.8	7.2	7.8	7.8	8.3	8.3	7.7	8.4	8.0	6.9	6.8
Tar Avg	6.7	8.5	4.0	7.2	8.0	6.4	6.2	6.2	6.0	5.6	7.4	7.3	7.6	8.4	6.5	5.5
Company	6.6			7.8	8.7	4.8	6.4	6.4	5.9	5.1	7.9	7.1	7.2	8.2	6.4	6.2
Society	7.0			6.9	8.9	3.4	6.3	6.8	6.3	5.3	8.6	6.9	7.2	8.3	7.1	7.0
Overall	7.0			7.9	7.9	3.8	7.4	7.2	6.5	5.4	7.5	7.6	7.2	8.0	7.1	6.4
Importance																
Self	75.0	57.7	48.0	61.1	51.4	65.0	33.9	18.4	39.4	68.9	39.5	61.4	37.7	56.7	53.9	23.4
Focal	64.2	52.7	55.6	63.9	68.6	63.0	39.4	18.4	38.1	70.6	54.4	67.9	39.3	55.0	51.1	26.2
Tar Avg	36.4	32.4	49.2	38.1	40.8	23.1	38.1	28.4	39.5	38.2	28.2	35.6	8.2	25.9	42.8	26.5
Company	35.7			33.6	49.1	32.2	51.7	40.4	44.0	34.6	39.6	39.3	2.8	32.2	45.1	34.4
Society	30.4				15.5	16.2	26.0	39.0	17.5	18.0	14.0	26.0	1.0	22.7	17.4	13.2
Overall	25.8				39.3	29.2	50.6	27.4	28.0	42.3	36.3	48.6	3.6	22.7	29.1	13.2

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